

Journal OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION

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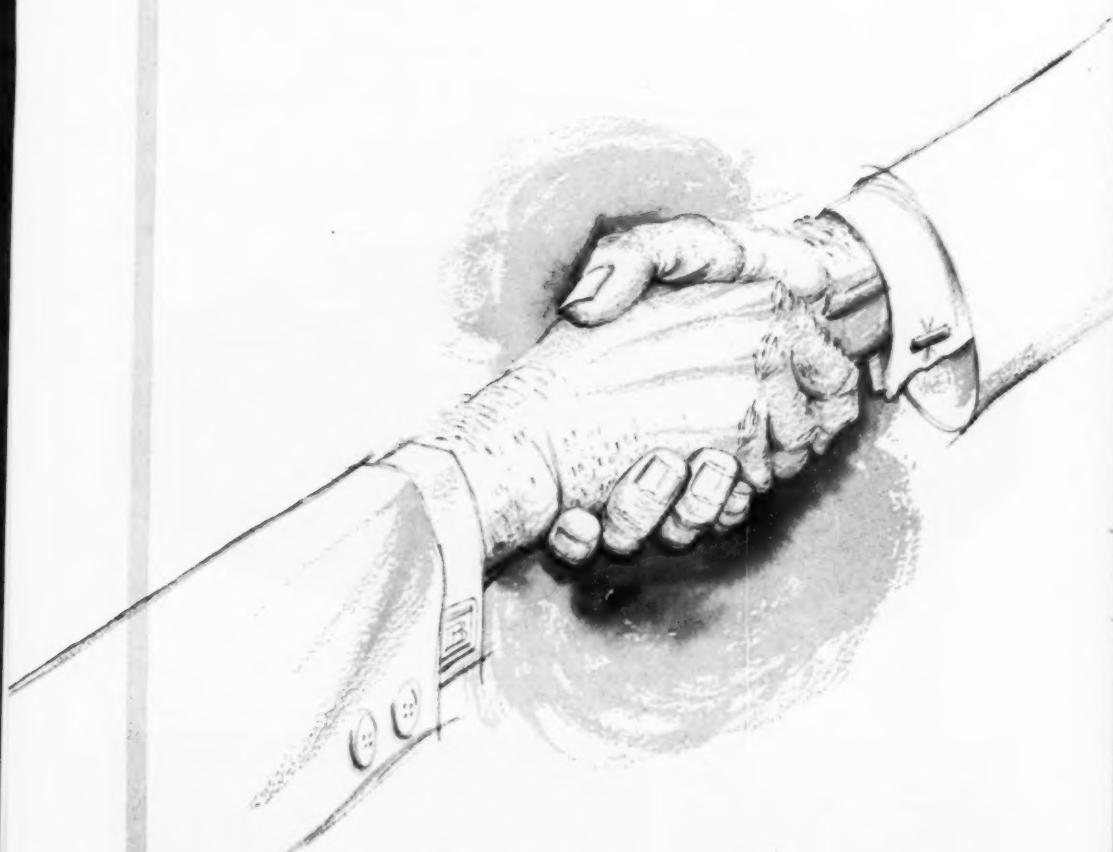
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News From Washington



The Advisory Group appointed to review the **brucellosis program** for the U.S.D.A. (see JOURNAL, Sept. 1955: 277; Nov. 1955: 465) will hold a series of six regional meetings to give individuals and representatives of interested organizations and groups an opportunity to express opinions concerning the value and conduct of the program. Meetings will be held in Salt Lake City, Utah, January 23; Fort Worth, Texas, January 25; Omaha, Nebraska, January 27; New York City, February 6; Atlanta, Ga., February 8; and Chicago, February 10.

The Committee reports that replies to a questionnaire indicated enthusiastic approval of the eradication program with only minor areas of disagreement in regard to certain technical and program procedures. Fifteen states hope to reach the official status of "modified brucellosis-free" by 1960 or before. North Carolina, New Hampshire, and Maine have already been certified.

The Food and Drug Administration, Department of Health, Education, and Welfare has ruled that all **drug products**, including injections, ophthalmic solutions, surgical sutures and surgical dressings, **sterilized by irradiation are regarded as "new drugs"** and, prior to marketing, investigations must establish that irradiation treatment does not cause the drug to become unsafe or otherwise unsuitable for use.

The Food and Drug Administration has granted clearance to the American Cyanamid Company to market **chlortetracycline** as a **preservative for uncooked poultry**.

New problems for feed manufacturers, drug manufacturers, and regulatory officials created by the recent growth in the use of **medicated livestock feeds** will be the subject of a two-day symposium to be sponsored by the Food and Drug Administration and the Department of Health, Education, and Welfare, January 23-24, 1956. Under the Federal Food, Drug, and Cosmetic Act, medicated feeds are defined as both drugs and foods for animals. As such, they are subject to both the safety and labeling requirements of the law.

A separate radiological defense division has been established in the Federal Civil Defense Administration to assist in developing national preparedness against radioactive fallout resulting from nuclear attack. Agricultural Research Service, U.S.D.A., in cooperation with Atomic Energy Commission and Public Health Service, is assembling information on the hazards of such fallout and defensive measures which might be taken to minimize the effects.

An eight-page leaflet issued by U.S.D.A. on automatic, heated livestock waterers points out such heaters reduce costs and increase livestock production. A copy of U.S.D.A. Leaflet 385, "Automatic Livestock Waterers", may be obtained from the Office of Information, U.S.D.A., Washington 25, D.C.

The annual report for the year July 1, 1954, to June 30, 1955, submitted by Assistant Secretary of Defense Berry, carried a tabulation showing the **number of veterinary officers on duty in the Armed Forces** on the date indicated to be: July 1954, 755; March 1955, 773; June 1955, 776.



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1. J. A. V. M. A. 108:304, May, 1951.

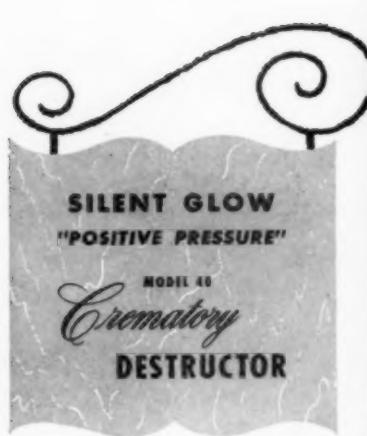
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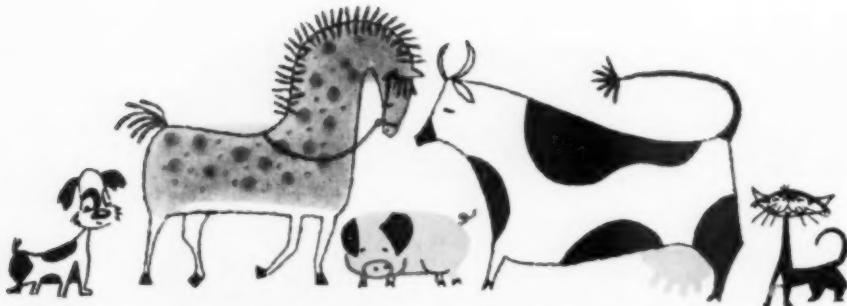
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1. Rachman, M., and Frucht, T. R.: Vet. Med. 49:341, 1954.

2. Sternfels, M.: Vet. Med. 50:82, 1955.

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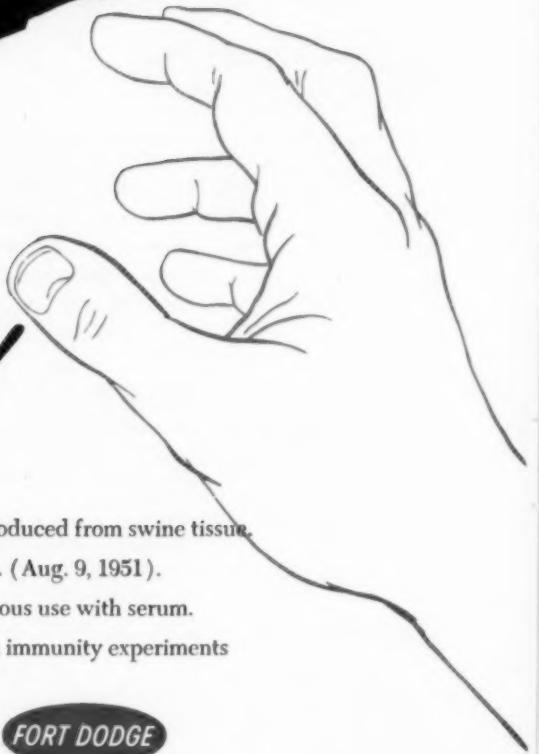
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A Transmissible Disease Affecting the Mucosae of Cattle

W. R. PRITCHARD, D.V.M., Ph.D.; DORIS BUNNELL TAYLOR, Ph.D.;
H. E. MOSES, D.V.M., M.S.; L. P. DOYLE, D.V.M., Ph.D.

Lafayette, Indiana

DURING the past 18 months, numerous instances of an unusual disease syndrome in cattle, characterized by digestive and respiratory system involvement, have appeared in Indiana dairy and beef herds. This disease rather closely resembles virus diarrhea as described by Olafson, MacCallum, and Fox¹ in New York; a disease reported from Saskatchewan by Childs;² epizootic enteritis which occurred in Sweden and was reported by Hedstrom and Isakson;³ and mucosal disease as described by Ramsey and Chivers⁴ in Iowa. It also resembles to some extent two exotic diseases—rinderpest and bluetongue of cattle.⁵

Clinical and pathological differences and cross-protection tests which are indicated in this paper suggest that this condition may be a separate disease entity. It has been called virus diarrhea-Indiana because of its clinical similarity to virus diarrhea-New York. It has also been called erosive gastroenteritis.

CLINICAL OBSERVATIONS

The clinical signs observed in field cases of this disease were similar in all of the herds studied, although considerable individual and herd variation occurred, both in the severity and the course of the disease. Animals 8 months to 2 years of age usually appeared to be most susceptible, and calves under 2 months of age were ordinarily resistant. In some herds, the disease was severe while in others it was mild.

The onset was sudden and characterized by fever (103 to 108 F.), moderate to severe depression, tachycardia, polypnea, and

anorexia. Shortly after the onset, a moderate to marked nasal discharge appeared and most animals developed a low, harsh, dry, nonproductive cough. The nasal discharge, serous at first, later became more viscous and mucous (fig. 1). In the most severe cases, the entire muzzle became covered with a thick, tenacious discharge which sometimes hung nearly to the

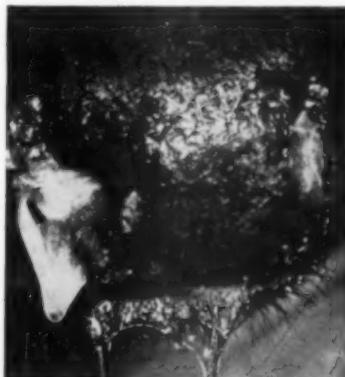


Fig. 1—Characteristic early mucous nasal discharge from a cow with a field case of virus diarrhea-Indiana.

ground. In some herds, there was little nasal discharge. Hyperemia of the nasal mucosa was marked in most cases. At this stage, the disease in many respects resembled so-called shipping fever except for no evidence of pulmonary changes.

Mouth lesions, found in about 10 per cent of affected animals, were circular or elongated reddened areas or superficial

From Purdue University Agricultural Experiment Station, Lafayette, Ind. Submitted as journal paper No. 887.



Fig. 2 (Top)—Early mouth lesions on the dental pad of a cow with an experimental case of virus diarrhea-Indiana.

Fig. 3 (Bottom)—Superficial circular erosions on the muzzle of a cow with a field case of virus diarrhea-Indiana.

erosions 5 to 30 mm. in diameter (fig. 2), and were most commonly found on the lips, the dental pads, and the buccal mucosa. In some cases, there were extensive, deep erosions or even ulcers. Mouth lesions were most marked in the earliest cases in a herd and were seldom found in later ones. Similar lesions were sometimes found on the muzzle (fig. 3), nares, and vulva.

Lameness was a prominent clinical finding and appeared to be mostly due to laminitis. Many of the most severely affected animals exhibited marked lameness during the entire clinical course of the disease. Generally, in a rather severe occurrence, about 10 per cent exhibited varying degrees of lameness. Laminitis in some was so marked that animals were reluctant to stand or to walk. When they did, they kept their weight on their heels with their forelegs spread (fig. 4). Some merely walked with a stiff or halting gait. In some, the skin around the coronary band appeared to be congested. After recovery, many of these animals developed hoof defects (rings) similar to those which commonly

occur following acute laminitis in horses.

One of the most characteristic features of this disease was diarrhea. It appeared a few days to a week after the febrile period and persisted continually or intermittently for one to four weeks. The feces were often hard during the febrile period and frequently contained small blood clots or flecks of mucus. Between the febrile and the diarrhea periods, mucus was sometimes present in the feces in long, thick, tough strands, $\frac{1}{2}$ to $\frac{3}{4}$ inch in thickness and sometimes several feet in length. After diarrhea appeared, the feces were fluid, fetid, contained many bubbles and, in some instances, were comprised almost entirely of mucus which resembled egg albumen. As the disease progressed, increased quantities of bright red blood appeared in the feces.

Due to dehydration in protracted cases, the skin over the cervical region became wrinkled, leathery, and scurfy, resembling hyperkeratosis. Severely affected animals lost considerable weight and condition during the course of the disease. No accurate means of measuring this loss was available, although estimates indicated that 1,000-lb. animals lost 150 to 250 lb. during a month of severe illness. Milk production in lactating animals was also markedly reduced. A few young animals developed convulsions prior to death.

The morbidity seemed close to 100 per cent in most of the herds studied, the mortality varied from 0 to 20 per cent. The deaths usually occurred early in the herd outbreaks or within the first ten days of the clinical course which was usually four



Fig. 4—A calf with an experimental case of virus diarrhea-Indiana, showing marked lameness. Notice the widely spread forelegs and the forward placement of the hindlegs.

to six weeks. A few animals had diarrhea for longer periods.

In small calves less than 2 months old, and sometimes in older animals, the clinical signs of this disease were mild. In these cases, a mild fever (102.5 to 103.5 F.), slight respiratory involvement, unthriftiness, and mild diarrhea were the only signs observed. Some young calves developed temporary corneal opacities early in the course of the disease.

Little information was obtained on the mode of spread of this disease, there usually being no history of direct or indirect contact with sick animals. Outbreaks sometimes occurred, however, after the introduction of new animals or following the passage of animals through public stockyards and sales barns.

In two large herds (187 and 120 head), this disease recurred in some of the animals about three to four months after its original appearance in the herd. The largest herd had two such recurrences before it was sold for slaughter. Subsequent infection among recovered animals was not reported in other herds.

Field cases were treated with most of the available antibiotics and sulfonamides with no detectable alteration in the course of the disease, but supportive treatment may have been of benefit. Some animals died as a result of secondary pneumonia and peritonitis. There was suggestive evidence that fewer deaths occurred from such complications when chemotherapeutic agents were used early in the outbreak.

HEMATOLOGY AND UROLOGY

The only remarkable hematological finding was a leukopenia which occurred during and immediately following the febrile period of the disease. Leukopenia frequently recurred after diarrhea had been present for several days. Leukocyte counts of 1,000 to 3,000 were often found. Some animals developed a relative lymphocytosis during the later stages of leukopenia. No alteration in the erythrocyte sedimentation rate was observed.

During the acute phase of the disease, the urine of some severely affected animals showed a decrease in specific gravity (1.005 to 1.015), and proteinuria. Leukocytes and casts were frequently observed in the sediment.

POSTMORTEM OBSERVATIONS

The most marked gross pathological changes were congestion, hemorrhages, and erosions of the mucosa of the digestive tract. All portions of the tract were involved, although usually not in all individuals. Lesions were present most consistently in the cephalic third of the esophagus, the abomasum, and intestines, with the erosions in the abomasum usually having progressed to ulcers. A catarrhal exudate was found in all portions of the intestines, and edema was often present. Congestion, hemorrhages, and erosions were sometimes found in the gallbladder. The lymph nodes in some animals were enlarged and edematous.

Congestion of the upper portions of the respiratory tract, the nasal cavity, larynx, trachea, and large bronchi was observed in most fatal cases. A markedly viscous, tenacious, mucous exudate was usually found in these areas.

Histopathological examination, limited mostly to the gastrointestinal tract, showed extensive loss of surface epithelium. The mucosa, generally thickened due to edema, frequently showed hyperemia and small hemorrhages. Edema sometimes involved the deeper layers of the wall of the abomasum and intestine. Numerous large mononuclear cells were found diffusely distributed in the mucosa, many of them containing particles which appeared to be phagocytized material. Some of the eroded areas, particularly in the abomasum, showed evidence of healing.

ETIOLOGY

This disease has been reproduced in its entirety in 2- to 18-month-old cattle by the intravenous and intramuscular injection of Berkefeld-N filtrates of defibrinated blood obtained from affected animals. The clinical, hematological, and pathological findings in the experimentally induced infection were identical to field cases. This disease was also readily transmitted from calf to calf by direct and indirect contact.

Cross-protection tests conducted with virus diarrhea-New York* indicated that the two diseases were different—at least immunologically. Animals that had recov-

*This agent was supplied by Dr. Charles J. York, director of virus research, Pitman-Moore Co., Indianapolis, Ind.

ered from virus diarrhea-New York developed virus diarrhea-Indiana when challenged with that agent, and vice versa. Recovery from virus diarrhea-Indiana, on the other hand, resulted in immunity to a subsequent challenge with the same agent.

DIAGNOSIS

A diagnosis of virus diarrhea-Indiana can ordinarily be made on the basis of clinical signs including the morbidity, leukopenia, and characteristic necropsy findings. At some stage of the clinical course, however, it does resemble a number of other cattle diseases including virus diarrhea-New York, shipping fever, mucosal disease, vibronic winter dysentery, bovine malignant catarrah and, to some extent, Johne's disease.

It would appear that the greatest single difficulty in clinical diagnosis would be the differentiation of this disease from virus diarrhea-New York. Additional experimental studies will be required to establish conclusively whether they are one or different diseases, but available evidence seems to indicate that the Indiana disease is somewhat more severe. The respiratory signs are more marked, the febrile reaction more pronounced, and lameness is a prominent finding. In addition, recurrences of this disease may appear three to four months after recovery while in virus diarrhea-New York recovered animals are said to be immune to subsequent infection.

Early in the course of an outbreak, virus diarrhea-Indiana might be confused with so-called shipping fever. However, the development of mouth lesions and laminitis, the absence of pulmonary pathological changes, the long course, the complete lack of response to chemotherapy, and the presence of profuse diarrhea following the febrile period are helpful in eliminating a diagnosis of shipping fever.

Virus diarrhea-Indiana closely resembles mucosal disease in many major respects. Both begin with a febrile reaction and both are characterized by erosions of the alimentary canal, a nasal discharge, and diarrhea. In mucosal disease, however, the oral erosions are generally much more extensive and are present on the anterior dorsum of the tongue, the latter not having been observed in virus diarrhea-Indiana. Excessive lacrimation is a frequent finding in mucosal disease but is rare in

virus diarrhea-Indiana. A striking difference between these two diseases is that in mucosal disease the apparent morbidity is low but nearly all the animals that develop clinical signs of disease die. It should be emphasized that differences in the signs and postmortem lesions in this disease and in mucosal disease are quantitative rather than qualitative, differing in degree rather than in the kinds of signs and lesions. Experimental studies must be conducted to determine whether these two conditions are different manifestations of the same disease or whether they are two separate disease entities.

The marked febrile reaction, signs of upper respiratory involvement, and the long clinical course serve to differentiate virus diarrhea-Indiana from vibronic winter dysentery.

Virus diarrhea-Indiana might easily be confused with the early stage of bovine malignant catarrah. Nervous signs, ocular involvement, the low morbidity and high mortality are characteristic of bovine malignant catarrah and are important differences between that disease and virus diarrhea-Indiana.

The low morbidity and chronic debilitating nature of Johne's disease and the presence of numerous acid-fast bacilli in the feces or in scrapings of the intestinal mucosa and a positive reaction to the intradermic Johnin test make clinical differentiation between it and virus diarrhea-Indiana possible.

SUMMARY

The widespread occurrence of virus diarrhea-Indiana, an unusual disease of cattle, is described. It is characterized, clinically, by fever, nasal discharge, cough, erosions of the oral mucosa, lameness, and diarrhea; at necropsy, by erosions, congestion, and hemorrhage of the mucosa of the digestive tract and congestion of the upper portion of the respiratory system; and hematologically, by leukopenia. It was transmitted experimentally to calves with Berkefeld-N filtrates of blood from affected animals. Cross-protection tests conducted with virus diarrhea-New York indicated that the two diseases are different immunologically. The name "virus diarrhea-Indiana" has been used for this disease because of its clinical similarity to virus diarrhea-New York.

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Veterinary Service for Sentry Dogs of the U. S. Army in the Panama Canal Zone

Lt. Colonel E. T. MARSH, V.C., U. S. Army

Fort Leavenworth, Kansas

Twenty-nine male German Shepherd dogs, with their soldier handlers and one officer that were to form the 7468 AU Sentry Dog Platoon, arrived in the U. S. Army Caribbean theater, April 30, 1953. This unit was assigned to the provost marshal of that theater for operational control. The veterinary care for the unit was assigned to the 97th Veterinary Detachment, Fort Clayton, C. Z.

Colonel Marsh, formerly of the Panama Canal Zone, is now stationed at Fort Leavenworth, Kan.

Acknowledgement is made to Dr. John N. Van Zandt, Houston, Texas, and Dr. Glenn E. Taylor, Modesto, Calif., who as veterinary officers assigned to the 97th Veterinary Detachment, Fort Clayton, Canal Zone, were responsible for the medical records of the sentry dogs.

Fig. 1—Temporary housing for sentry dogs in the Panama Canal Zone.

FACILITIES FOR SENTRY DOGS

Quarantine.—All dogs had received the required rabies and distemper vaccinations before shipment to the Canal Zone.

As this was a military unit, the usual four months' rabies observation quarantine period required for all pets entering the Canal Zone was waived by the director of the Canal Zone Health Department. The dogs were placed in a 21-day working quarantine under the supervision of the Army veterinarian and, for all practical purposes, remained in a continuous quarantine as their nature made it necessary to keep them separate and confined or controlled by a leash.

Housing.—Adequate tropical kennels were not available and temporary measures, using the dog's shipping crate as a kennel, were not satisfactory. The dogs had been away from the zero temperatures of Colorado only three weeks, so their heavy coats made them uncomfortable in the tropical climate. The days were hot (85 to 90 F.) and muggy, as it was the transition period between the dry and the wet seasons. One dog died of a heat stroke within two days. The dogs were then moved under a large open-roofed shed with a concrete floor and were chained to the supporting posts (fig. 1). The dogs and floor were "hosed down" several times a day.

In May, 1953, the dogs were moved into permanent tropical kennels in a fenced area adjacent to the veterinary clinic and the unit headquarters (fig. 2). The overhang-type roofs were insulated with cork and the kennel legs were about 18 inches high. The dogs lay in or underneath the





Fig. 2—The individual kennels designed for tropical use have cork-insulated roofs

kennels for protection against the sun or the heavy rains. The area around each kennel was later excavated about 8 to 10 inches and refilled with gravel with a covering of beach sand. This was a sanitary measure to help eliminate intestinal parasites, but it was of questionable value as intestinal parasites continued to be a recurring problem. However, the sanded areas were easily cleaned which was especially helpful during the rainy season.

Feed.—On arrival, the dogs were fed canned horse meat and dog meal until kitchen facilities became available. They were then placed on a ration composed of 15 lb. of cooked horse meat, 27 lb. of uncooked horse meat, 10 lb. of beef fat, 30 lb. of dog meal, and 8 cups of uncooked eggs. Just enough hot water was added to make this a crumbly mass. Each dog was fed 3 lb. of this preparation each morning. The dogs were fat-starved when they reached the Canal Zone so for a while they were fed an excess of fat.

Morning feeding was preferred as the dogs were used on night patrols and a hungry dog is more active and alert.

DISEASE CONDITIONS OF SENTRY DOGS

Intestinal Parasites.—Fecal flotation examinations of each dog's stool were made once a month or oftener. *Toxocara canis* (roundworm) and *Ancylostoma caninum* (hookworm) eggs were generally found. Normal butyl chloride and, later, vermiplex capsules in the prescribed dosages were used for treatment. As the sentry dogs were vicious, the capsules were embedded in a bolus of meat and fed by the handlers.

Tick Parasites.—Tick infestation was a

recurring problem. The heavy coat made an excellent hiding place for the ticks. Commercial repellent dips were tried with fair results but a better formula, furnished by the engineer section, consisted of water emulsions of DDT (900 cc., 25%) and lindane (125 cc., 25%) plus 20 gal. of water. Each soldier had to dip his dog just before the monthly pay call—an effective way to get the dogs treated. The preparation had about a 30-day residual repellent effect.

Lucilia macellaria (screwworm) infestation occurred frequently in wounds. All dogs were examined daily and small wounds or lacerations were treated with smear 62. Even with the close daily check, 12 dogs had small puncture wounds which became badly infested before being discovered. These wounds were cleaned with ether, the parasite removed, and smear 62 applied.

Diseases of the Skin.—Five positive cases of demodectic mange were diagnosed. Isolation and treatment with benzyl benzoate resulted in recoveries.

Moist eczema developed periodically in several dogs. These were observed especially in the animals which were extremely nervous and excitable. Treatments with a solution of tannic and salicylic acid in alcohol or with tincture of benzoin were the most effective. The medication was applied after clipping the affected areas.

A fungous type of infection developed in the feet of 4 dogs after use in a jungle tactical exercise. These were treated with tincture of benzoin with satisfactory results.

One dog developed an extensive multiple

abscess in the left thoracic region. Approximately 2 quarts of a watery, dark gray fluid was removed.

Diseases of the Blood Stream.—Blood samples from all dogs were examined monthly for microfilariae. Three positive *Dirofilaria immitis* cases were diagnosed in the 13-month period. These animals were placed in separate screened kennels and treated with fuadin in the prescribed dosages. This apparently eliminated the microfilariae as later blood examinations were negative.

To prevent mosquito bites and possible heartworm infection, a mosquito repellent, issued to troops, was applied to the coats and unprotected skin of all dogs before they went on night patrol or jungle tactical exercises.

Respiratory Diseases.—Several dogs developed pneumonia-like symptoms apparently overnight, with temperatures to 105 F. and dry râles in the lungs. They were depressed and refused feed. This same condition was observed frequently in privately owned pets. Penicillin and streptomycin were the most effective therapy.

Diseases of the Digestive Tract.—Diarrheas occurred at intervals. The stools usually revealed parasite eggs. Coccidiosis was diagnosed in one, but may have been present in others. These diarrheas were attributed to intestinal parasites plus the general nervous temperament of the animals. Withholding feed and using intestinal astringents soon brought the animals back to normal.

Miscellaneous.—On a hot morning in May, 1954, a dog had a heat stroke during a short exercise period. He was taken immediately to the veterinary clinic but death occurred within forty-five minutes.

SUMMARY

Two of the 29 army sentry dogs in the Panama Canal Zone died of heat strokes during the 13-month period. Parasites, intestinal and external, were a constantly recurring menace which required routine monthly treatments.

Other conditions which required attention included heartworm infestation, a pneumonia-like condition, eczemas, fungous infections, mange, and digestive upsets.

Soils of the United States Favorable for Anthrax

GLENN VAN NESS, D.V.M., and C. D. STEIN, D.V.M.

Washington, D. C.

Anthrax in the United States does not often cause heavy losses, but it is a potentially serious disease, as experience here and in Old World countries has indicated. From statistics compiled by Stein,¹ continual losses occur in the Mississippi River delta, the northern great plains, and the valley of California. Livestock officials in these areas keep the losses under control by vaccination and quarantine. Sporadic outbreaks in other areas may not be immediately recognized as anthrax. This can result in further losses when carcasses are salvaged as food for meat-eating animals. Contamination of the ground increases the danger of future outbreaks.

Breed² suggested and Minetti and Dhanda³ found that the development of anthrax organisms was favored in neutral or slightly alkaline soils rich in nitrogen and other plant nutrients. The principal areas of enzootic anthrax are in regions characterized by soils with high nitrogen⁴ and with adequate calcium. Stein⁵ has presented information that anthrax is more likely to occur following floods, drought, and other extreme ecological changes. Therefore, the disease is not a continuous problem even in enzootic areas. According to annual reports made by Stein,^{6,7} the trend has been for gradual extension of anthrax in some regions and its restriction in others. Our concern is with the expanding incidence of anthrax.

Extensive soil surveys in recent years have made possible the classification of soil groups in the United States. Calcium is one of the important factors in the neutrality of the soil and its ability to accumulate nitrogen. Much of the soil-borne anthrax reported is on neutral or alkaline soils containing adequate calcium. Some of the food-borne anthrax outbreaks in swine in Ohio and nearby states were followed by reports of anthrax on the neutral or alkaline soils, but not on the acid soils. However, Ohio and Michigan reported no anthrax in 1952 and 1954. In contrast, the appearance of anthrax in cattle in the same year on lime-bearing soils in Florida was followed by recurring

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losses. A most disturbing factor in the national anthrax situation is the sporadic losses in which the source of the infection is unknown. Many of these occur on soils which resemble those of known anthrax districts.

The development of a map of soils favorable to anthrax was begun in 1953. Although essentially complete by the end of the year, modification in the future, based on local data, can be expected as greater attention is directed to the role of specific soils.

The map of soils (fig. 1) includes all soils (49) neutral or alkaline in reaction which are expected to harbor anthrax organisms.

Serious outbreaks of anthrax occur on alluvial soil in the Mississippi delta and

the delta in the valley of California. These soils are not indicated on the map, since alluvial soils are composed of material transported by wind or water from other areas. Desert soils which might otherwise be favorable are excluded because of a lack of moisture. There are some regions in the United States where local modifications of the soil exist, due to mining operations or very restricted geological differences, which can not be indicated on maps covering large areas. In southwest Missouri, zinc and lead mining resulted in large surface deposits of calcium carbonate. Coal mining and oil drilling in Missouri, Kansas, Illinois, and drainage operations in Florida, resulted in local changes which presented new conditions. These are indicated as special soil conditions favoring anthrax

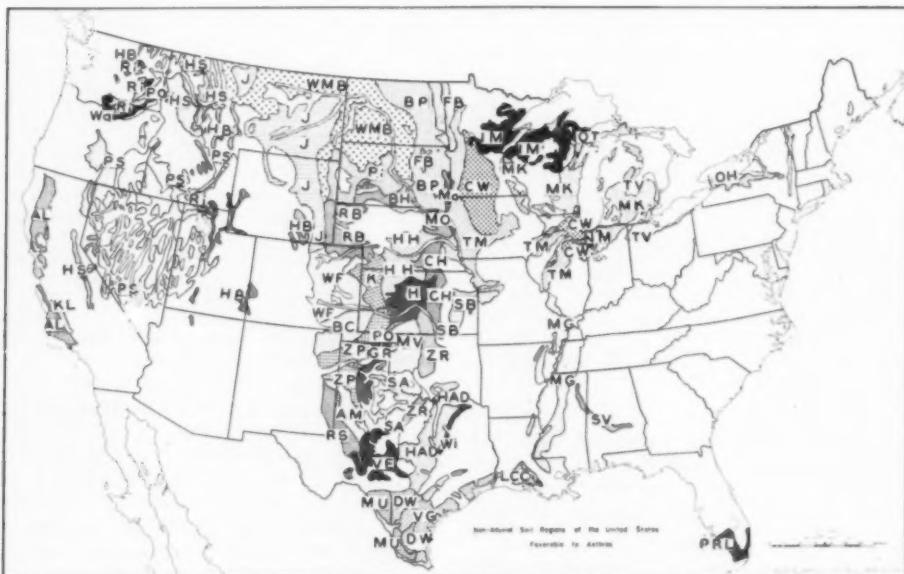


Fig. 1—Distribution of soils considered capable of supporting anthrax.

AL = Altamont-Los Osos-Cayucos; AM = Amarillo; BC = Baca-Powers; BP = Barnes-Parnell; BH = Boyd-Holt; CW = Clarian-Webster; CH = Crete-Hastings-Idana; DW = Duval-Webb; FB = Fargo-Bearden; GR = Greensburg-Fullman-Richfield; H = Hayes; HAD = Houston-Austin-Denton; HB = Hyrum-Bingham-Avon; HH = Holdrege-Hall; HS = Helmer-Santa-Benewah; IM = Iron River-Milaca; J = Joplin; K = Keith; KL = Kettleman-Linne; LCC = Lake Charles-Crowley; MG = Memphis-Grenada; MK = Miami-Kewaunee; Mo = Moody; MU = Maverick-Uvalde; MV = Miles-Vernon; NM = Newton-Maumee; OH = Ontario-Honeoye-Pittsfield; OT = Ontonagon-Trenary; Pa = Palouse; PI = Pierre; Po = Potter; PS = Portneuf-Sagemo; RB = Rosebud-Bridgeport; Ri = Ritzville; RS = Reagen-Springer; SA = St. Paul-Abilene; SB = Summit-Bates; SV = Sumter-Vaiden; TM = Tama-Marshall; TV = Toledo-Vergennes; VE = Valera-Ector; VG = Victoria-Goliad; Wa = Walla Walla; WF = Weld-Fort Collins; Wi = Wilson; WMB = Williams-Morton-Bainville; ZR = Zaneis-Renfrow; ZP = Zita-Pullman.

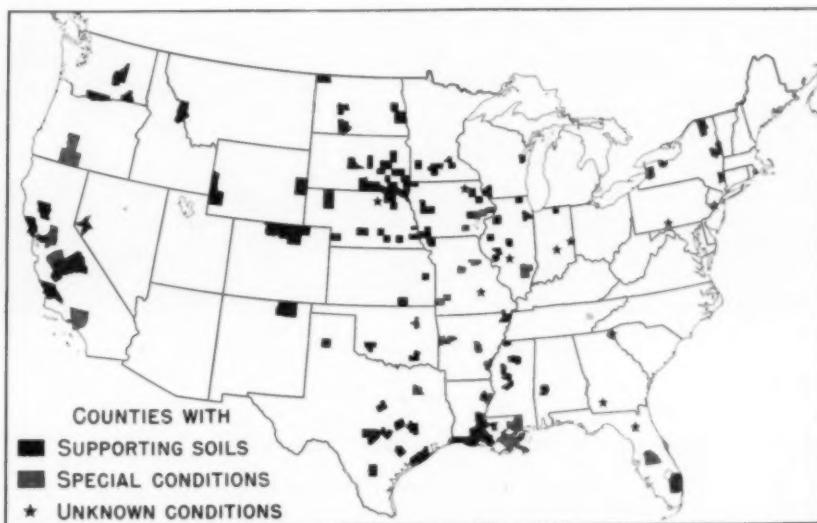


Fig. 2—Counties reporting anthrax during 1953 and 1954.

(fig. 2). It is obvious that the soils supporting anthrax are fertile, and fertile soils resulting from man's efforts could produce favorable areas. It is doubtful if good fertilizer practices generally favor anthrax when they are used on well-drained soil which usually does not favor anthrax.

During 1953 and 1954, 125 of the 170 counties reporting anthrax contained soils considered capable of perpetuating the disease. Of the remaining 45 counties, 33 have special soil conditions, most of which were down-stream from a favorable soil. This occurred in Arkansas, California, Iowa, Louisiana, Oklahoma, Oregon, and Texas. Of the 49 soil groups considered capable of supporting anthrax, 37 were involved in the reported anthrax outbreaks. The serious outbreak in 1954 at the mouth of the Mississippi River occurred on overflow land under unusual river and climatic conditions. Further study of local influences that may produce suitable soil for the propagation of anthrax is desirable. The anthrax-affected counties in 1953 and 1954 are shown in figure 2. The 1954 outbreak in the Seattle (Wash.) zoo is not included.

CONCLUSION

An approach has been made to showing the relationship of soil types to the per-

sistence of anthrax. While such a tendency is evident, well-defined information is lacking. The concept that specific soil conditions are essential to the persistence of the infection can be made a basis for the handling of outbreaks. Alteration of the soil reaction to eliminate infection may be a logical approach.

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Fig. 1.—The building which houses the office, clinic, and living quarters in Dr. Cameron's plant in Nampa, Idaho, with the hospital to the right rear.

Kindness Animal Hospital

WALTER E. CAMERON, D.V.M.

Nampa, Idaho

The plant of the Kindness Animal Hospital in Nampa, Idaho, consists of three buildings, yard, corral, and pasture.

The combination clinic, office, and living quarters faces the road, with a driveway on either side (fig. 1 and 3).

The hospital, with operating room for both large and small animals, is the second building (fig. 2), and the third is a con-

valescent stable and quarters for dogs (fig. 4).

Having the plant divided into three units has been very satisfactory in a mixed practice. It makes available a clean, attractive office which is isolated from odors and noise. In the large animal operating room there is direct ventilation to the outside so as to prevent odors, such as those from

Fig. 2—Combination hospital for large and small animals.



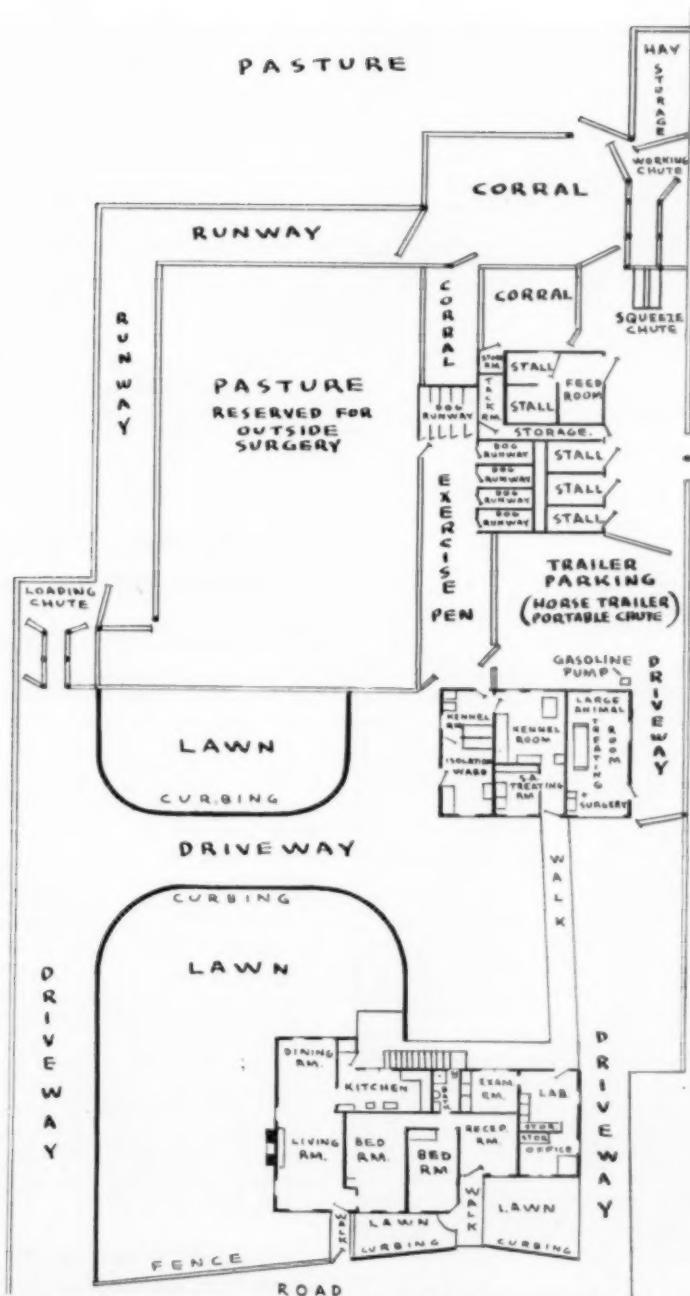


Fig. 3—This drawing shows the arrangement of the units on the grounds of the Kindness Animal Hospital in Nampa, Idaho.



Fig. 4—The convalescent stable for large animals; it also contains exercise pens for small animals.

rumenotomies, penetrating the entire hospital.

Noise from barking dogs is chiefly confined to the third unit, where the exercise pens are located.

The large animal portion of the hospital was built mainly for convenience and to make better work possible rather than as a financial investment. It is gratifying to have the sick animal in a place with heat, lights, hot water, and other conveniences, especially in inclement weather. More important, the patient can be seen and treated several times a day if necessary. When an emergency operation is to be performed, I call the hospital and all preparations are made when I arrive. The large animal facilities consist of four tie stalls, one box stall, and four corrals. The animals attended in the hospital in 1954 are estimated as follows:

<i>Cattle</i>	cesarean section, 10
rumenotomy, 75	neoplasms, 5
sucking operation, 15	actinomycosis, 2

hernia, 4	dental, 10
wounds, 10*	colic, 10
severe acetonema, 10	intestinal parasite treatment, 5
miscellaneous, 50	quittor, 1

<i>Horses</i>	castration, 10
firing, 10	cryptorchid, 4
radiograph diagnosis, 10	wound treatment, 20
	hernia, 4
	miscellaneous, 30

There are few swine in this part of the treatment of sheep. country and little demand for individual

We have room for 25 to 30 small animals and these yield about one-third of the practice income. Caring for 20 to 25 hospital patients, along with receiving or discharging them plus telephone conferences, makes a full day's work.

Corn Smut Is Not Harmful in Silage.—In one trial, heifers ate 4 lb. of smut daily for more than two weeks without harmful effects.—*Hoard's Dairymen*, Aug. 25, 1955.

An Adjunct to Large Animal Radiography — the Intracavity Cassette

WILLIAM H. GRAY, R.T.

Fort Collins, Colorado

In an effort to use equipment that the students as practitioners are most likely to have available, our large animal radiography has been limited to skull, cervical spine, and extremities.

When attempts to penetrate the spine or pelvis with the mobile x-ray unit failed, a method of inserting the radiographic film holder into the rectum was the only alternative.

Due to the problem of immobilizing the part to be radiographed, it was apparent that a rigid cassette using high speed intensifying screens would have to be used in place of a flexible direct exposure film holder. Also, the amount of radiation necessary to obtain adequate radiographic density was reduced many times when using intensifying screens.

In designing the cassette (fig. 1) a width of 10 cm. was found large enough to radiograph the body of a vertebra and small enough to be passed into the rectum with the aid of epidural anesthesia. A length of 20 cm. permits the taking of two vertebrae which facilitates interpretation by providing a comparison. The frame of the cassette was made of stainless steel. A 1-mm. sheet of aluminum was used for the front to filter out secondary rays, thus helping to obtain better radiographic detail. A 1-cm. layer of moisture-proof sponge was placed between the back intensifying screen and the back of the cassette. This was necessary to assure good screen film contact and provide a light and moisture barrier.

The cassette was made for us by a local tinsmith and the intensifying screens were Patterson hi-speed series 2.

In an effort to obtain uniform radiographic quality, the technical factors remained constant with different regions of the pelvis and spine. Factors used were

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The author expresses his appreciation to Drs. Stuart A. Patterson and Wm. D. Carlson for their advice, cooperation, and assistance.



Fig. 1—Cassette designed for radiography of oral and pelvic cavities. It is equipped with Patterson hi-speed screens and is 10 cm. wide and 20 cm. long.

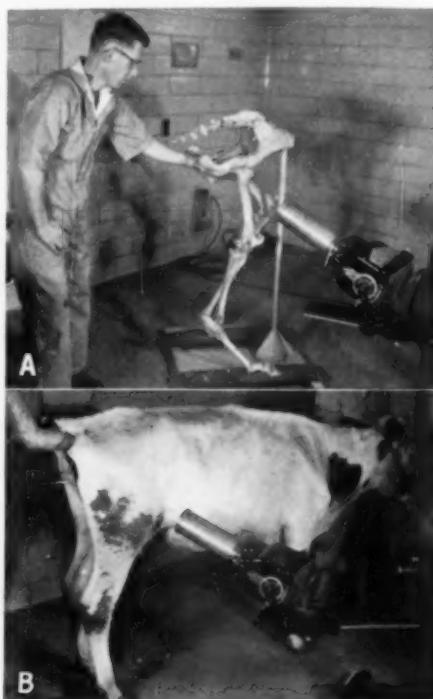


Fig. 2—(A) Relationship of the x-ray tube, coxofemoral joint, and the cassette. (B) Relationship of the x-ray tube and the animal being radiographed.

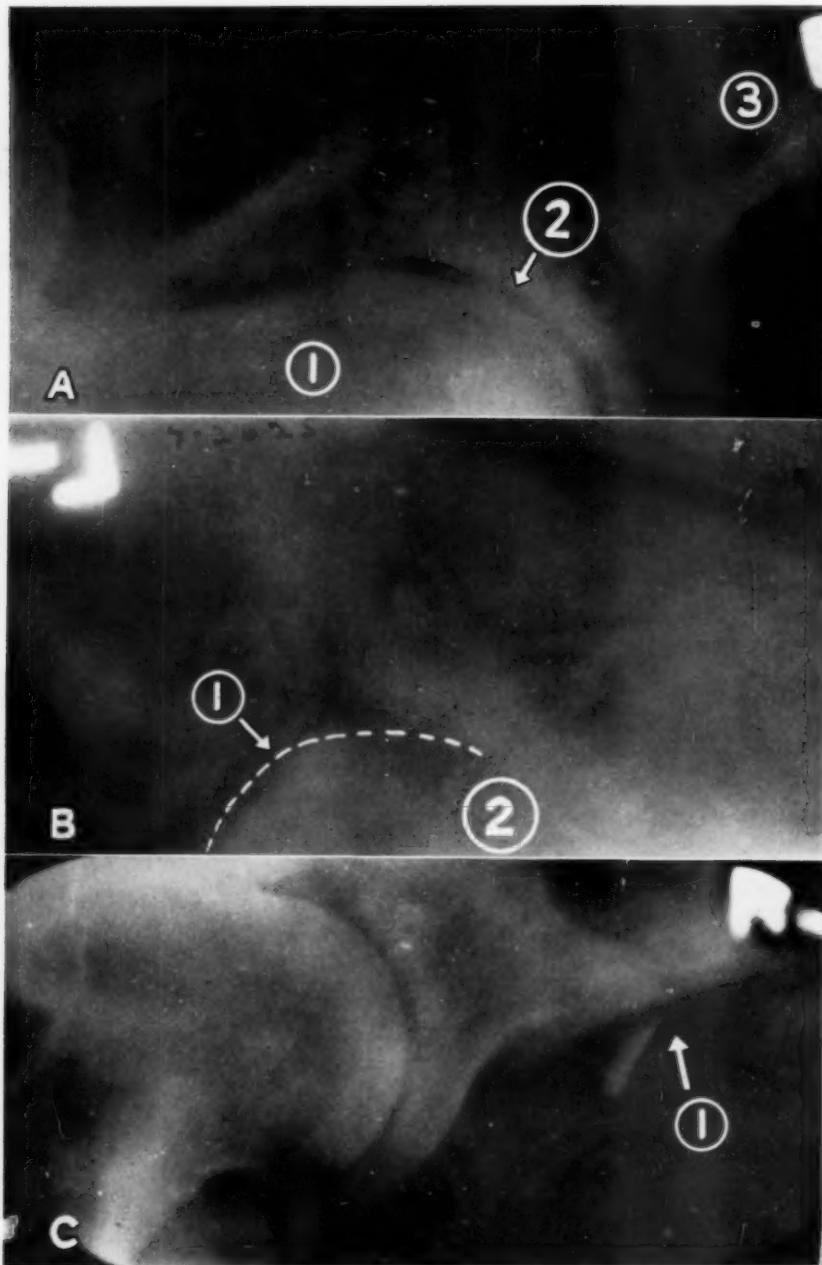


Fig. 3—(A) Radiograph of the coxofemoral joint of a cow showing head and neck of femur (1), acetabulum (2), and shaft of the ilium (3). The radiograph was made following reduction of a coxofemoral luxation and was taken just prior to fixation. The lead letters (L and R) indicate the side radiographed and are placed in the dorsal anterior corner to facilitate orientation.

(B) Radiograph showing extreme degeneration of the entire acetabulum (1), head and neck of the femur (2). A comparative study of the other side was similar to (A).

(C) Radiograph of the coxofemoral joint showing fracture of the shaft of the ilium (1).

80 kv.p., 15 ma., 30-inch tube-film distance with time as the only variable. This procedure has proved satisfactory in obtaining diagnostic radiographs in cases of luxation (fig. 3 [A]), degenerative arthritis (fig. 3 [B]), and a fracture of the shaft of the ilium (fig. 3 [C]). A radiograph of the opposite side was made where a comparison would facilitate interpretation.

Technique.—After the epidural anesthetic was given and good relaxation was obtained, the cassette, wrapped in a rubber envelope, was inserted into the rectum.

The cassette was placed medial to the acetabulum with the superior border parallel with the ischiatic spine (fig. 2 [A]).

Due to the concavity of the pelvis, the central ray was directed 30 degrees upward and 45 degrees caudally (fig. 2 [B]), thus enabling the rays to strike the plate at right angles and minimize distortion. Radiographs of the lumbar spine, sacrum, and coccyx were less difficult due to the absence of the above-mentioned angles.

Equine Cerebrospinal Nematodiasis

Of 4 cases of so-called lumbar paralysis of horses in Ceylon, 2 of the horses responded to treatment with a known filariicide. The 2 that were necropsied had parasite-containing lesions in the spinal cord at the cervicothoracic junction. The animals were in good condition but showed motor weakness, incoordination, ataxia, and paralysis.—*Brit. Vet. J., June, 1955.*

Developing Radiographs.—Here is a suggestion which may help when glass pans are being used for developing x-ray film in a darkroom. The glass pans containing the developing solution are elevated and a small red light bulb is placed under each. In this way the developing film can be watched and the process controlled.—*A. A. Barry, D.V.M., Lynn, Mass.*

Kerrville Laboratory Wins Award

The Livestock Insect Laboratory of the ARS at Kerrville, Texas, which has on its staff veterinarians, chemists, and entomologists, was recently given a distinguished service award by the U.S.D.A. for its work in developing and evaluating insecticides for the protection of livestock. Their most publicized recent project was insect control

by the use of sterilized male insects, which resulted in the freeing of the Island of Curacao of screwworms.—*Nat. Agric. Chem. A. News., Sept., 1955.*

Drought Emergency in Southwest

Because of the extended drought, 62 counties in six southwestern states have been declared eligible for an emergency feed program. Most of these counties are in Kansas, followed by Texas, Wyoming, Nevada, Colorado, and Utah. In North Carolina, eight counties were included as a result of hurricane damage.—*Am. Feed Mfr. A. Circ. Q-9, Sept., 1955.*

Bovine Mucosal Disease in Ontario

Animals dead of mucosal disease have been necropsied at the Ontario Veterinary College, 1 each in 1952 and 1953 and about 2 each month since. The disease affected 1 to 3 animals per herd, mostly from 5 to 24 months of age, and all of five attempts at transmission failed. In 24 cases reported in detail, the duration of illness had been four to 56 days (average 14); all animals had shown diarrhea (12% with hemorrhage); all had lesions in the alimentary tract except 1 and it was the only one with lesions on the feet and udder; 1 had corneal opacity and 1 had cystic ulcers of the cecum and colon. None of ten brains examined showed pathological changes.—*Canad. J. Comp. Med., Oct., 1955.*

Institute of Agricultural Medicine

The nation's first Institute of Agricultural Medicine has been established at the University of Iowa with help from the W. K. Kellogg Foundation. Medical and social research will be conducted at the Institute on problems such as diseases transmitted from animal to man, impurities in water, milk, and milk products, the effect of chemical fertilizers and insect sprays on the farmer and consumer, and the effect on consumers of drugs used to accelerate growth of animals. The Division of Veterinary Medicine at Iowa State College will collaborate.—*Am. J. Pub. Health, Oct., 1955.*

A species of giant toad can squirt deadly poison 12 feet and can devour rats.—*Sci. News Letter, Oct. 22, 1955.*

Surgery and Obstetrics

and Problems of Breeding

A Source of Error in the Bovine Pudendal Nerve Block

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Since Larson's description¹ of the pudendal block in the bull, the technique has come into wide use for anesthesia of the penis. Watts² applied the method to the cow and found that it had certain advantages over epidural injection for anesthesia of the vulva and perineum. However, there are indications that the technique as described is not adequate to reach all of the nerves concerned. The anesthesia is not always as good as might be expected, considering that the needle is guided directly to the pudendal nerve by palpation. Also, the volume of anesthetic recommended, 25 cc. on each side, would suggest some inaccuracy of the injection that is corrected by widespread diffusion of the solution.

Pudendal block is the most common type of anesthesia in human obstetrics and has been for many years.³ In the human technique, special attention is given to infiltration dorsal and medial to the ischial tuberosity in order to reach the perineal branch of the caudal cutaneous femoral nerve. This nerve has not been mentioned in the papers on the application of the method to the ox, nor is it described in my dissection guide.⁴

Reimers⁵ described and illustrated a caudal cutaneous femoral nerve in 14 bovine specimens, but observed no connection with the pudendal nerve or the genital organs. He reported it to be largely a cutaneous nerve to the caudal thigh region, as in the horse.

Ziegler,⁶ in dissections of 3 cattle, 2 goats, and a lamb, could not find a caudal cutaneous femoral nerve, although he was familiar with Reimers' work. Ziegler stated that the only cutaneous nerves to that region were branches of the pudendal. In figure 2 of Ziegler's paper, there is a nerve, labelled No. 8, which leaves the greater sciatic foramen and passes outside the sacrosciatic ligament to the lesser sciatic foramen, where it joins the pudendal nerve. This was interpreted as a branch of the pudendal that perforated the ligament and anastomosed with the sciatic plexus. This nerve has also been observed by Larson and Kitchell.⁷

In our investigation, six bovine dissections (5 female and 1 male) have shown

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without exception a nerve similar to Ziegler's No. 8 (cf in fig. 1). It left the dorsal border of the sciatic nerve outside the sacrosciatic ligament and extended back to the lesser sciatic foramen lateral to the ventral border of the ligament, or on the origin of the deep gluteal muscle. It entered the lesser sciatic foramen, passed between the caudal gluteal and internal pudendal arteries at their origin, and anastomosed with the ventral branch of the pudendal nerve (D in fig. 1) which is the dorsal nerve of the penis in the male, or the nerve of the vestibule and clitoris in the female. *This anastomosis provided a bypass around the site of the pudendal block, which is medial to the ligament and cranial to the foramen.*

We found no other nerve in the ox comparable to the caudal cutaneous femoral nerve, and nothing resembling Reimers' description. In the horse, the nerve anastomoses with the pudendal nerve and supplies the vertebral head of the semitendinosus before becoming cutaneous. In our bovine dissections, we found small variable muscular branches to the caudal thigh muscles in addition to the anastomosis with the pudendal nerve, but no cutaneous branch. It would seem logical to consider this nerve in the ox to be a reduced homologue of the caudal cutaneous femoral nerve in the horse, the skin innervation having been taken over by the cutaneous branches of the pudendal nerve. The marked difference in Reimers' observations might well be caused by breed variation.

Conclusion.—To insure complete anesthesia of the perineum and penis, or vulva, it would be advisable to inject the pudendal and hemorrhoidal nerves as recommended by Larson; then the needle should be redirected ventrad to reach the surface of the obturator internus just inside the lesser sciatic foramen. Here the ventral branch of the pudendal nerve can be palpated distal to the anastomosis. It is accompanied by the internal pudendal artery and vein.

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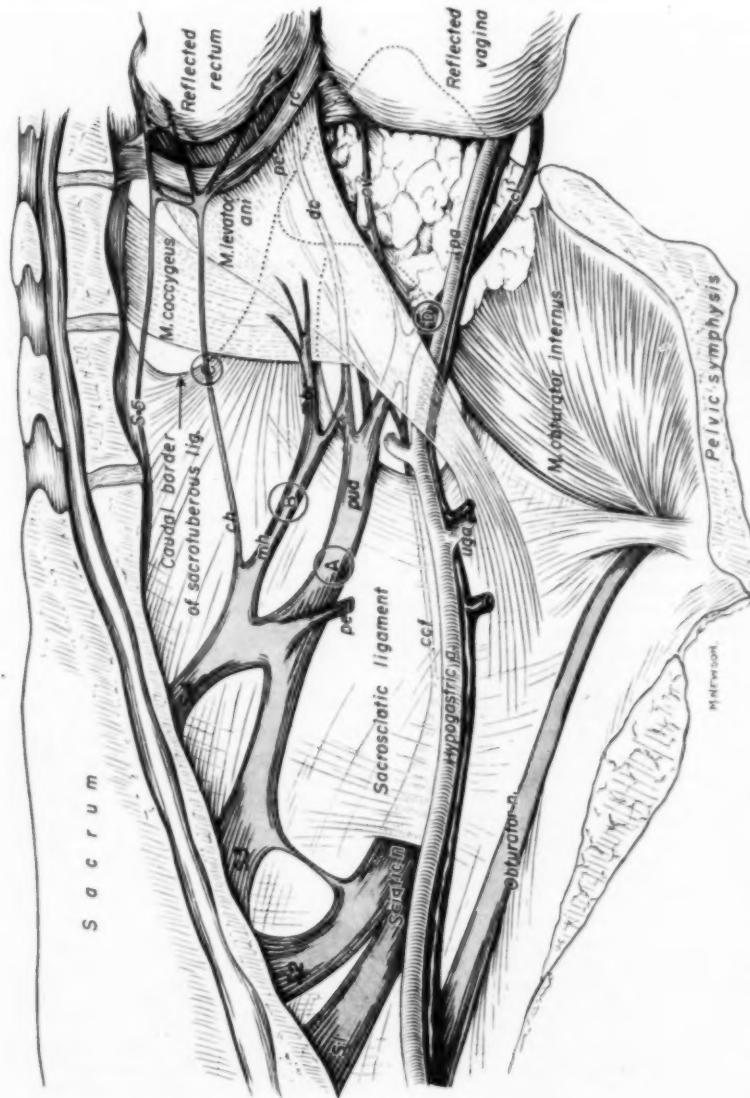


Fig. 1.—Diagram of the nerves on the medial surface of the right pelvic wall of a cow, with the pelvic viscera drawn caudad: (A, B, C) points of injection recommended by Larson; (D) additional point recommended in this paper; (ccf) anastomosis between sciatic and pudendal nerves; (ch) caudal hemorrhoidal n., subject to individual variation; (cl) nerve to clitoris; (cv) nerve to m. constrictor vestibuli; (dc) distal cutaneous branch of pudendal n.; (ipa) internal pudendal artery; (mbr) muscular branch of coccygeus and middle hemorrhoidal n., subject to individual variation; (pc) proximal cutaneous branch of pudendal n.; (pud) pudendal n.; (pe) pelvic n.; (pu) pudendal n.; (rc) m. rectus; (s) sacral nerves; (uga) uregenital artery.

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²Habel, R. E.: Guide to the Dissection of the Cow. Edwards, Ann Arbor, Mich., 1955.

³Reimers, H.: Der Plexus lumbalis und sacralis

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⁴Ziegler, H.: Die Innervationsverhältnisse der Beckenmuskeln bei Haustieren im Vergleich mit denjenigen beim Menschen. Gegenbauers Morphol. Jahrb., 68, (1931): 1-41.

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A Surgical Correction of Glaucoma in the Dog—A Case Report

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Glaucoma has been well defined and characterized.¹⁻⁴ It is a disease process of the eye in which there is abnormally high intraocular pressure, and in man is classified as follows: (1) primary, (a) noncongestive, (b) congestive; (2) secondary, (a) noncongestive, (b) congestive.

Congestive glaucoma may be further divided into acute and chronic forms, the differential criterion being the intensity of signs and the rapidity of development.

Secondary glaucoma is associated with such ocular disturbances as intraocular tumors, dislocations of the lens, iritis or iridocyclitis, corneal ulcers, and injuries with prolapse of the iris.

The cause of primary glaucoma is unknown. It appears to be the result of an imbalance of inflow-outflow of the anterior chamber. Inadequate drainage is most often incriminated.

Three stages of the congestive form are defined: (1) the prodromal, which is relatively subjective and would escape the owner's attention in most cases; (2) the acute, which objectively shows increased intraocular pressure as determined by a tonometer or by palpation of the globe with the tips of the index fingers of both hands, swollen lids, congestion of the conjunctiva, circumcorneal congestion, cloudiness and insensitivity of the cornea, shallowness of the anterior chamber, turbidity of the aqueous humor, dilatation and sluggishness of the pupil, dullness of the iris, and turbidity of the other ocular mediums; and (3) the absolute, which is the final stage for all forms and is characterized by permanent blindness in the involved eye, absence of conjunctivitis, mild circumcorneal congestion, negligible corneal opacity, a shallow anterior chamber, mydriasis, immobility of the pupil, atrophy of the iris, increased intraocular pressure, cupping and atrophy of the optic disc, and the so-called "glaucomatous ring" about the optic nerve. Frequently, atrophy of the eye or ulceration and perforation of the cornea is seen. Surgical correction attempted during this stage is useless and enucleation is advisable.

The object of treatment is, in essence, the reduction of intraocular pressure by facilitating drainage outflow through the spaces of Fontana and the intrascleral venous plexus (canal of Schlemm).

Miotics such as eserine (0.25%), pilocarpine (1 to 2%), or di-isopropylfluorophosphate (D.F.P.,

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1%) are used to reduce intraocular pressure by constricting the pupil and thus opening the filtration angle which, in turn, facilitates drainage outflow. Retrobulbar injections of novocaine paralyze the ciliary innervation and thus reduce the secretion of aqueous fluid by the ciliary epithelium. The end result is the reduction of intraocular pressure.

The use of retrobulbar injections of novocaine is indicated in the congestive, acute stage of glaucoma. Relief with such therapy should be evident almost immediately. If there is no response, paracentesis or a posterior sclerotomy should be performed to relieve the pressure and a medication program of miotics be instituted, with the hope of controlling the disease or at least preparing the eye for eventual surgery. If, on the other hand, response is evident, operative procedures should be postponed until the congestive process has abated (through the use of miotics or repeated retrobulbar injections of novocaine); or, if it appears that miotics can control the disease process entirely, the animal may be thus treated with no further thought of surgery.

The operations commonly performed for the relief of glaucoma are iridectomy, the filtering cicatrix operations, iridotasis, and iridencleisis. The purpose of this last operation is to establish drainage from the anterior chamber via a new route (subconjunctival), using a wick of iris placed through an artificial aperture in the sclera at the limbus as described below.

CASE REPORT

On Dec. 21, 1953, a 6-year-old female Cocker Spaniel was admitted to the veterinary clinic of the University of Minnesota in a state of normal hydration, conformation, and nutrition. A clinical examination revealed a pronounced enlargement of the left eye, increased intraocular pressure, conjunctival and ciliary congestion (fig. 1), and a shallowness of the anterior chamber. The intraocular pressure of the affected eye was 84 mm. of mercury as measured with the tonometer.* Under light surital anesthesia, a retrobulbar injection of 1.5 cc. of 2 per cent procaine was made into the muscular cone of the eye at the medial canthus in an attempt to reduce intraocular pressure. Eight hours later, the pressure was reduced to 13 mm. in the affected eye while the normal eye registered 20 mm. of mercury.

An iridencleisis was done on the afternoon of December 22. Following nembutal® anesthesia, the patient was prepared for surgery. The eye was anesthetized further

*Dr. Monahan, oculist at the University of Minnesota Medical School, was consultant.



Fig. 1—The eye of the Cocker Spaniel shows pronounced enlargement and conjunctival and circumcorneal congestion.



Fig. 2—Epinephrine is injected subconjunctivally into the eye. Note marked decrease in vascularity as compared with figure 1.

with the topical application of 2 per cent butyn sulfate. The entire head was draped except for a small opening over the eye.

Stay sutures (No. 000 silk with a cutting atricile needle) were placed through the conjunctiva and sclera at the 3 and 9 o'clock positions to rotate the eye downward and to help maintain fixation of the globe during the operation. Several drops of a 1:1,000 solution of epinephrine were applied to the eye to control congestion and bleeding. A conjunctival flap was prepared by first injecting 1.5 cc. of 2 per cent procaine with epinephrine subconjunctivally (bulbar) at the 12 o'clock position (fig. 2), and then making a curved incision through the conjunctiva 5 mm. from the limbus and

extending from the 10 to the 12 o'clock position. By blunt dissection, the conjunctiva then was separated from the sclera from the initial curved incision down to the limbus (fig. 3). This flap of conjunctiva was reflected over the cornea and clear of the operative field.

The scleral tissue between the 11 and 1 o'clock positions and immediately behind the limbus was partly incised with a Lundsgaard knife. A keratome was then used to enter the anterior chamber, starting 1 mm. behind the limbus in the area previously prepared by the Lundsgaard knife and entering immediately in front of the iris. Great care was taken not to come in contact with the iris or the poste-

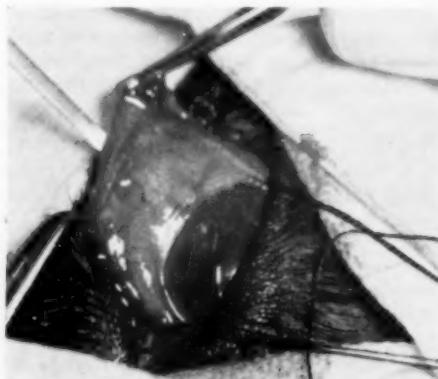


Fig. 3—By blunt dissection, the conjunctival flap is being prepared.

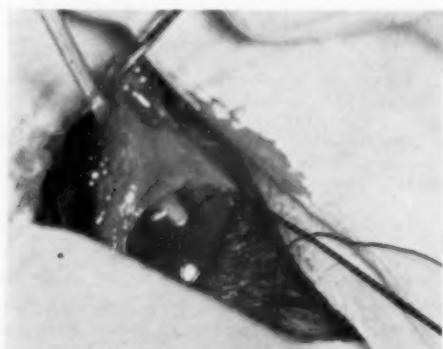


Fig. 4—An iris repositor is introduced into the anterior chamber to reorient the iris after the wick had been made.

rior surface of the cornea. When the anterior chamber was entered, the fluid escaped through the aperture and the chamber partially collapsed. An iris forceps was introduced into the anterior chamber (fig. 4) and the iris was grasped and brought through the aperture so that its posterior surface was anteriorly directed, with its free border uppermost. This extraocular portion of the iris was split with scissors and the separation was continued down to the attached border of the iris by tearing. The two portions of the iris were left extending through the scleral incision onto the surface of the sclera to serve as a wick, thus draining fluid out of the anterior chamber. The conjunctival flap then was returned to its normal position, thereby covering the scleral opening and the exposed iris, and was sutured in place with No. 0000 silk. The suture ends were left untied. Fluid from the anterior chamber now could flow through the scleral aperture and drain subconjunctivally. A permanent bleb of conjunctiva resulted which was not esthetically objectionable because it was covered by the upper eyelid.

Postoperative treatment consisted of systemic penicillin and 1 drop of atropine (1%) in each eye twice daily. Except for some hemorrhage into the anterior chamber, which resolved itself in a period of two weeks, there were no complications. The conjunctival sutures were removed after seven days and the patient was discharged.

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Induced Abortion in the Mare.—It is practically impossible to dislodge the corpus luteum of the mare's ovary but the cervical seal is easily dislodged, just the reverse of the situation in cows. Removal of the cervical seal in a mare usually results in abortion in about three days.—*Georgia Vet., July, 1955.*

Prolonged Gestation in the Mare

A Thoroughbred mare belonging to Dr. Fritz Howard (OSU '43) was bred May 9, 1954, and foaled 401 days later on June 14, 1955. The foal, a male, seemed normal. The longest gestation period previously on record by *The Blood-Horse* was that of a Thoroughbred mare — 400 days. She was last bred April 28, 1935, and foaled June 2, 1936. This filly was malformed but survived to become a good brood mare. Of 719 foals at three central Kentucky farms, the average gestation period for colts was 343.7 days and for fillies 342.1 days.—*The Blood-Horse, July 16, 1955.*

Testosterone, the male hormone, has for the first time been synthesized directly from coal tar chemicals.—*Sci. News Letter, Aug. 6, 1955.*

Spayed Heifers Not Profitable.—Spayed heifers will not be docked because of pregnancy at market time, but they will have a flank scar to which the packer may object. In a feeding test at the University of Nebraska, spayed heifers gained less and did not dress out as well as unspayed heifers.—*Successful Farming, Oct., 1955.*

Treatment of Open Fractures

In a discussion of basic principles in management of open fractures, antibiotics were mentioned last "to place them in proper perspective. "Systemically or locally administered antibiotics . . . will not prevent the septic decomposition of . . . devitalized tissues. . . and will not neutralize the necrotizing enzymes in undrained pus." They can not be substituted for thorough debridement.—*J.A.M.A., Oct. 1, 1955.*

Regulations for Use of Frozen Semen

When frozen semen is used in a registered dairy herd, the progeny may be registered only if: the bulls are officially blood typed; each single service ampule is permanently labelled; those freezing the semen are properly registered with the respective breed organization; an inventory is kept at all times; and the death or sale of a sire is promptly reported to the breed organization.—*Guernsey Breeders' J., Oct. 1, 1955.*

The Pathology of Mucosal Disease in Alabama

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THE TERM "mucosal diseases" is now used to designate recently recognized diseases of cattle characterized by diarrhea and ulcerations of the mucosal lining of various parts of the body. The first description of a mucosal disease was given by Olafson, MacCallum, and Fox.¹ That condition was designated "virus diarrhea" of cattle² and has been studied by several groups of workers.³⁻⁵ Disease conditions in cattle falling into the category of mucosal diseases have also been reported by workers in Iowa,⁶⁻⁷ Indiana,⁸ and California.⁹⁻¹⁰ The purpose of this report is to describe the pathology of a mucosal disease of cattle encountered in Alabama.

CLINICAL OBSERVATIONS

During the fall, winter, and spring months from September, 1952, to May, 1955, 9 cattle with fatal cases of mucosal disease were referred to the Department of Pathology at the Alabama Polytechnic Institute for postmortem examination. None were obtained during the summer periods. The cattle ranged in age from 3 to 16 months. Of these 9 animals, 7 were females, 2 were males; 8 were Herefords, and 1 was a Holstein-Friesian. The period of observed illness ranged from two-plus to 13 days. In all cases where symptoms were recorded, there had been watery or bloody diarrhea. In four instances, oral pathological changes had been indicated by such notations in the clinical records as "nose raw," "slobbering," or "stomatitis." The recorded temperatures of the affected animals were either normal or slightly elevated. Prior to 1955, only individual affected animals were observed at different times and from different premises. In several instances, a resemblance to virus diarrhea was apparent but definite conclusions on the nature of the disease were not indicated. Nervous symptoms were not recorded in any of these animals. During

the first five months of 1955, a series of 3 cases in cattle obtained from one premise showed sufficient clinical and pathological resemblances to the mucosal disease described by Ramsey and Chivers⁶ and Ramsey⁷ to warrant a diagnosis of mucosal disease. A restudy of the pathological changes of previous cases indicated that 9 belonged in the category of mucosal disease.

PATHOLOGY

The following description is based on significant changes found on routine necropsy and histopathological examination. The brain was not removed, nor was any gross or microscopic examination made of the upper respiratory mucosa. Changes found in viscera other than the gastro-



Fig. 1—Enlarged photograph of lesions in esophageal mucosa of a cow with mucosal disease.

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Fig. 2—Section of small lesion in esophageal mucosa of infected cow, showing necrosis of epithelium and some cellular infiltration. $\times 140$.

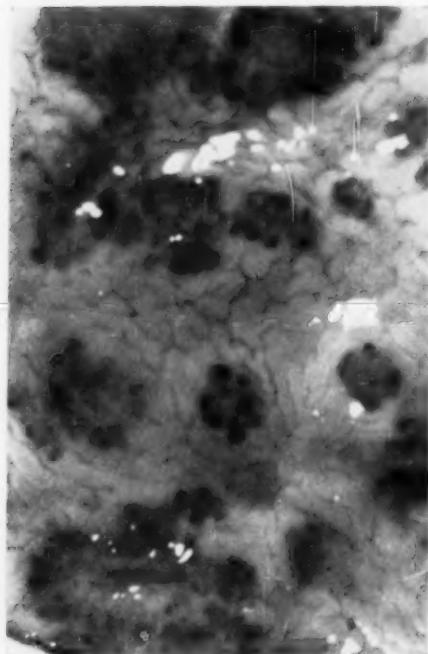


Fig. 3—Enlarged photograph showing clusters of hemorrhages in mucosa of abomasum of a cow.

intestinal tract did not appear to be of a primary nature and are not discussed.

For the purpose of description, it is convenient to place the mucosal lesions into two categories: (1) lesions of the stratified squamous epithelium of the anterior digestive tract; and (2) lesions of the glandular gastrointestinal mucosa (abomasum, small intestine, cecum, and colon). At necropsy, a variety of designations were given to lesions on the muzzle, lips, gums, hard palate, cheeks, tongue, and esophagus, including terms such as "slightly raised lesions with a necrotic surface," "erosions," "shallow ulcers," and "ulcers." An explanation for the different impressions gained from naked eye inspection of these lesions in various cases was afforded by subsequent study of their histopathological characteristics. Color transparencies of the esophageal lesions taken at close range and giving a magnified image also were revealing.

The smallest lesion perceptible was a grayish white, slightly raised focus or spot in the mucosa (fig. 1). Larger lesions were composed of a cluster or conglomeration of raised grayish white foci. Lesions large enough to be readily noticed without magnification usually had begun to erode, giving them the appearance of erosions or shallow ulcers with a depressed reddish, brownish, or greenish center and a slightly raised grayish white border (fig. 1). The larger lesions in the esophageal mucosa usually were linear, parallel to the long axis of the esophagus, and ranged in length from 0.5 to 3.0 cm. The lesions in the oral mucosa usually were small and irregular in outline. In one instance, however, there was extensive diffuse erosion of the mucosa of the hard palate, apparently from confluence of smaller lesions, and the denuded lamina propria was bright red from congestion.

Histopathological examination showed that the basis of the oral and esophageal lesions was necrosis of epithelial cells. There were lesions of microscopic size consisting of necrosis of individual epithelial cells or small groups of epithelial cells deep in the mucosa near the lamina propria. Lesions that were visible in color transparencies as grayish white foci were cone-shaped areas of necrosis and inflammatory cellular infiltration situated with the apex at the lamina propria and the base at the

surface of the mucosa (fig. 2). These small necrotic areas usually were elevated slightly above the mucosal surface. The larger lesions were areas of epithelial necrosis and inflammatory cellular infiltration and usually, but not always, showed erosion of the surface. These lesions corresponded to the erosions, the shallow ulcers, and the slightly raised lesions with a necrotic surface observed at necropsy. Despite extensive necrosis of the mucosal epithelium, the basal layer of epithelial cells usually remained intact or showed necrosis of only scattered individual cells or groups of cells. Inflammatory cellular infiltration of the lamina propria usually was slight or absent, except in instances where the mucosal lesion became invaded by bacteria. In several such instances, there was complete necrosis of the epithelium, and the lamina propria was heavily infiltrated with cellular exudate, demonstrating that ulcers can develop in mucosal disease following bacterial invasion of the primary lesions.

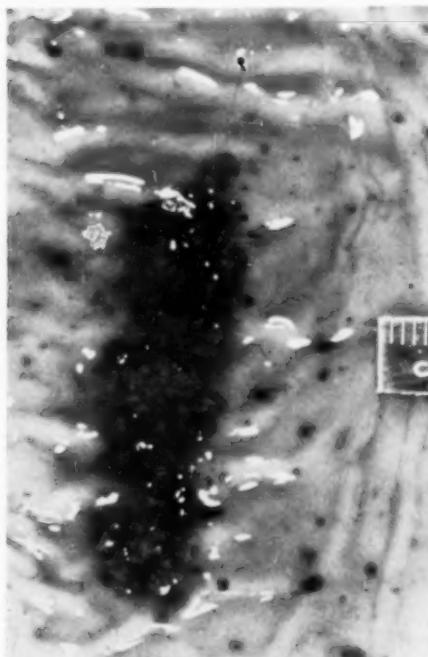


Fig. 4—Small intestine (ileum) of a cow with petechial and ecchymotic hemorrhages in mucosa, also a Peyer's patch with diffuse hemorrhage and gross appearance of beginning necrosis.



Fig. 5—Mucosa of bovine ileum and cecum with gross appearance of necrotic enteritis.

The pathological change in the gastrointestinal mucosa was remarkable for its apparent diversity on gross examination as opposed to its basic uniformity on microscopic examination. Variability of the gross appearance is illustrated by the different gross diagnoses that had been made in some of these cases, such as: hemorrhagic gastroenteritis, fibrinonecrotic enteritis with hemorrhage, necrotic enteritis, ulcerative gastroenteritis, and "probably poisoning of some kind."

Congestion of the gastrointestinal mucosa and hemorrhages were common but not constant findings. These circulatory changes were sufficiently obvious to be recorded at necropsy in a majority of the cases. In 3 of the 9 animals, there were circular clusters of small hemorrhages in the abomasal mucosa (fundus) with a total diameter ranging up to 1 cm. (fig. 3). The hemorrhages in the mucosa of the small and large intestines usually were petechial and ecchymotic (fig. 4), although in some

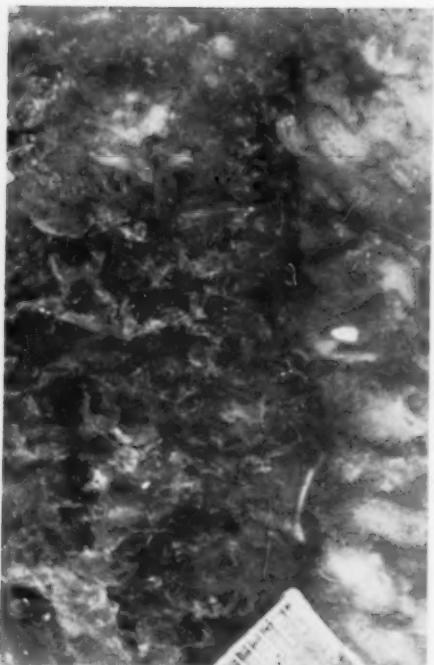


Fig. 6—Mucosa of bovine ileum with diffuse hemorrhage and gross appearance of fibrinonecrotic enteritis.

cases and in some areas there were more diffuse hemorrhages.

Ulcers in the abomasal mucosa were observed in 3 animals but none of these lesions were examined histologically. Lesions seen in the small intestines of 7 animals and in the large intestines of 5 were interpreted, grossly, as areas of beginning necrosis (fig. 4), areas of necrosis, necrotic enteritis (fig. 5), and fibrinonecrotic enteritis (fig. 6). In all but two instances these "necrotic" lesions proved, on microscopic examination, to be areas of mucosa covered by an adherent mass of exudate consisting of mucus, desquamated necrotic glandular epithelial cells, and leukocytes. Thus, the gross appearance that the mucosa was necrotic generally was misleading. The 2 animals showing actual necrosis of the mucosa on microscopic examination were instances where secondary bacterial invasion of the mucosa had taken place. In general, both the hemorrhage and apparent necrosis were slight in the duodenum and jejunum, but became increasingly

severe in the ileum, cecum, and colon. The lesions were particularly severe in the mucosa covering Peyer's patches in the ileum (fig. 4).

In addition to circulatory changes and necrotic-appearing lesions, there were other typical changes. In general, the intestinal mucosa was covered with tenacious mucus containing particles of ingesta that were difficult to wash off. In a few instances, the mucosa covering certain Peyer's patches in the ileum was depressed, giving the appearance of erosion or ulceration in that area (fig. 7). On histological examination, these apparent erosions or ulcers proved to be areas where almost complete destruction of the intestinal glands had occurred, along with atrophy of the lymphoid tissue, and the lamina propria of the mucosa had collapsed, resulting in depression of the surface below the level of the adjacent mucosa. Cystic dilatation of submucous glands in the colon near the ileocecal valve was also observed in several cases. In that area, the mucosa appeared



Fig. 7—Depression or apparent erosion of Peyer's patch, in a bovine ileum, due to destruction of intestinal glands and atrophy of lymphoid tissue.

thickened and the glands were filled with creamy exudate.

The essential histopathological alteration of the gastrointestinal mucosa was damage of the epithelial lining of the intestinal glands. The typically affected glands were greatly dilated and filled with mucus, necrotic desquamated epithelial cells, and variable numbers of leukocytes (fig. 8). Sometimes necrotic epithelial lining cells were seen *in situ*, but eventually they were cast off into the dilated lumen. Often, the undamaged lining epithelial cells that remained were not columnar or cuboidal in shape but were stretched laterally, apparently in an effort to cover the basement membrane of the gland.

In the anterior portion of the small intestine, only scattered individual glands were thus affected. Severely affected glands were more numerous in the posterior portion of the small intestine, especially in the mucosa covering Peyer's patches, and in the cecum and colon. Cysts in the colonic mucosa were the result of similar changes affecting the submucous glands. In most instances, areas of mucosa that appeared necrotic grossly were in reality just covered by a thick, tenacious layer of exudate from damaged glands composed of an ad-

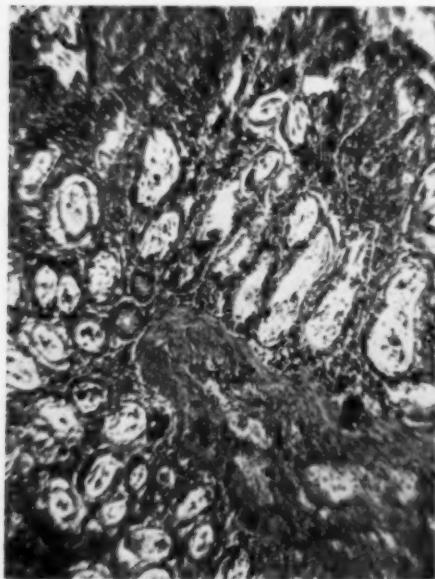


Fig. 8—Mucosa of ileum showing damaged glands.
x 70.

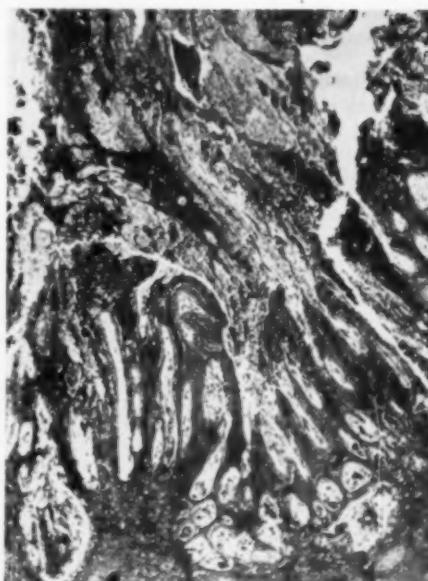


Fig. 9—Mucosa of ileum covered with layer of exudate constituting the apparent necrotic pseudomembrane seen grossly. x 35.

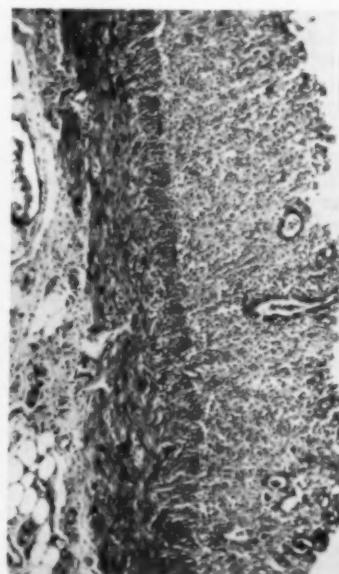


Fig. 10—Mucosa of bovine colon with almost total destruction of glands and collapse of lamina propria.
x 110.

mixture of mucus, desquamated necrotic epithelial cells, and leukocytes (fig. 9). Only a few areas were seen where secondary bacterial invasion of the lamina propria had occurred resulting in actual necrosis of the mucosa. There also were areas of mucosa where most of the glands had been destroyed and the lamina propria remained but had collapsed (fig. 10). Some areas of mucosa thus affected appeared eroded or ulcerated on gross examination (fig. 7). In places where damage of the intestinal glands had been relatively mild, there was eventual glandular hypertrophy rather than glandular destruction, and the hypertrophic glands were lined by tall columnar epithelial cells. Hemorrhage in the lamina propria of the intestinal mucosa was a prominent histological feature of most of the cases.

SUMMARY

The lesions of mucosal disease, as observed in Alabama, can be grouped into two categories: *i.e.*, those in the anterior digestive tract and those in the gastrointestinal mucosa. The lesions in the former are areas of necrosis in the stratified squamous epithelium. The smallest look grossly like slightly raised, white foci in the mucosa; the larger ones become eroded and have the gross appearance of erosions or shallow ulcers.

The lesions in the gastrointestinal mucosa consist of circulatory disturbances and damage of the epithelial lining of the intestinal glands. The lesions are most severe in the ileum, cecum, and colon. The circulatory disturbances are manifest as congestion and hemorrhages in the lamina propria. Damage of the intestinal glands is manifested grossly by excess mucus secretion and the formation of necrotic-appearing pseudomembranes composed of thick exudate discharged from the damaged glands. Damaged submucous glands in the colon become cystic. Almost complete loss of intestinal glands can occur in some areas. Actual necrosis of the mucosa may develop where the lamina propria becomes invaded by bacteria.

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How Virus Spreads

Viruses are spread by an explosion of the cell in which they have developed. When bacteria infected with bacteriophage were stored in a refrigerator at the University of California, instead of activity being suspended the bacteria cell exploded prematurely. A new enzyme, given the name of "virolysin," was found to be responsible. It is similar to autolysin in normal cells, which dissolves the cells after they die.—*Sci. News Letter, Oct. 22, 1955.*

Effect of Housing on Dairy Cattle

The optimum stable temperature for cows is 50 F. but too often it is maintained for the comfort of the herdsman (70 F.). At 75 to 85 F., milk production and feed consumption start to decrease until, at 105 F., both virtually stop; they return promptly when the temperature is reduced. Cows regulate body temperature largely by varying water consumption which, in one instance, increased from 11 gallons daily at 50 F. to 43 gallons at 100 F. Cows withstand low temperatures if protected from cold winds, rains, and snow.

In another experiment, calves in open sheds with a low roof had less scours and pneumonia, even at -20 F., than when conventionally housed.—*Guernsey Breeders J., Oct., 1955.*

Rabies in Insectivorous Bats of Texas

Lt. Colonel KENNETH F. BURNS, V.C., U.S. Army; Colonel CHARLES J. FARINACCI, M.C., U.S. Army; Captain THOMAS G. MURNANE, V.C., U.S. Army

Fort Sam Houston, Texas

IN 1932, it was demonstrated by Hurst and Pawan,¹ and later by Pawan,^{2,3} that the outbreak of paralytic rabies in man and animals, which occurred in 1925 in the area of Port of Spain, Trinidad (British West Indies), was transmitted by bats of the blood-sucking Desmodontidae family.

Haupt and Rehaag⁴ found a "leaf-nosed" bat in Brazil infected with rabies in 1921. The consensus was that a mistake had been made in the taxonomic classification of this mammal, or that the bat had perverted feeding habits while dengued with rabies because fruit-eating bats do not feed on blood and it had bitten a young calf which later developed rabies.

During the height of an epidemic of rabies in Trinidad in 1931, another fruit-eating bat was identified as being infected. However, not until Pawan⁵ conducted his classical studies on the fruit-eating *Artibeus* in 1937 was it definitely established that fructivorous bats (*Artibeus planirostris trinitatis*) do at times bite mammals and so produce rabies.

The possibility of bats acting as rabies transmitters in the United States was not seriously considered until Venter⁶ of Florida, diagnosed rabies in a Florida yellow bat (*Dasypterus floridanus*) which had bitten a boy during June, 1953. In September of the same year, Witte⁷ reported rabic infection in a hoary bat (*Lasionycteris cinereus*) which had made an unprovoked attack on a woman in Pennsylvania. Antirabies therapy in both instances was apparently effective.

During July, 1954, Enright,⁸ of Davis, Calif., isolated rabies virus from the brain of an apparently normal Mexican free-tailed bat. The virus was identified by observing Negri bodies in first-passage mice and by neutralization tests. One month later, the Public Health Service, Rocky Mountain Laboratory,⁹ isolated rabies virus from an obstreperous brown bat (*Eptesicus fuscus pallidus*).

Grimes *et al.*¹⁰ demonstrated Negri bodies in a free-tailed bat (*Tadarida mexicana*) which had bitten a 9-year-old boy in Austin, Texas, in 1954.

Presented during the Third Biennial Meeting of Public Health Veterinarians, Atlanta, Ga., March 28-April 1, 1955, and at the United States-Mexico Border Public Health Association meeting at Mexico City, D.F., May 6-9, 1955.

Colonel Farinacci is commanding officer, Lt. Colonel Burns is chief of the Virology and Veterinary Branches, and Captain Murnane is assistant chief of the Veterinary Branch, Fourth Army Area Medical Laboratory, Brooke Army Medical Center, Fort Sam Houston, Texas.

The authors appreciate the assistance of Dorothy Freseius Shelton, B.A.

Sullivan *et al.*¹¹ isolated rabies virus from 2 of 200 colonial bats collected from the central and south central parts of Texas during November and December, 1953.

These experiences prompted Sulkin *et al.*¹² to review the case of a white woman autopsied in October, 1951. She had been bitten by a bat three weeks prior to hospitalization and a provisional diagnosis of bulbar poliomyelitis was made. Death followed shortly and the pathological findings included "encephalomyelitis with demonstrable Negri bodies in central neurons compatible with rabies." Dr. Sulkin¹³ concluded: "This is the first human case of rabies resulting from a bat bite in the United States."

Early in 1954, a survey on nonsanguivorous bats was initiated by Burns and Farinacci¹⁴ on the military reservation at Fort Sam Houston, Texas, to determine: (1) if the Mexican free-tailed bat (*T. mexicana*) was a host for the virus of rabies in nature, and (2) if inapparent rabic infections occurred in this species as evidenced by the development of neutralizing antibodies for the virus of rabies.

Two virus isolates were obtained in mice inoculated with bat brain tissue. Tests with infected mouse brain tissue against known rabies-immune horse serum demonstrated that the immune serum neutralized both its homologous virus and the two newly isolated bat strains. Negri bodies had previously been observed in the brains of the bats from which the isolations were made.

Antibody studies revealed that the serum from 65 per cent of 207 bats contained a virus-neutralizing substance. Inactivation of the bat serum did not eliminate the rabies virus-neutralizing substance in the blood; hence, it appears that this virus inactivator was specifically related to immunity.

It is of epidemiological interest that practically all of the animal rabies occurring in Florida has been in raccoons and foxes. Similarly, a marked increase in the incidence of rabies in wildlife, particularly in the fox, is presently being reported in Texas.¹⁴

Present knowledge of bats and bat rabies in the United States is limited. However, bats may play a hitherto unrecognized role in the maintenance of wildlife rabies. In order to clarify some of the epizootiology associated with the bat host, we have expanded our survey.

MATERIALS AND METHODS

Bat Collections.—In southwestern Texas during 1954, 375 bats representing two species (*T. mexi-*

cana and *Myotis velifer*) were collected, 214 of which were from the Fort Sam Houston military reservation. The remaining 161 were netted in Bexar, Uvalde, Comal, and Kendall counties, and at William Beaumont Army Hospital, El Paso, Texas, and Kelly Air Force Base. In addition, 1 bat of a third species (*Lasionycteris borealis borealis*) found at Fort Sam Houston was studied.

In a previous study,¹³ we suggested that encephalitic manifestations exhibited by bats from the Fort Sam Houston bat colony were the result of insecticide spraying. However, the malady continues and no spraying has been done in the last six months (Dec., 1954 to May, 1955). Furthermore, a similar symptomatology is in evidence in the bat colony on Kelly Air Force Base, some 20 miles distant, where no spraying was done.

Identification of Bats.—The bats were tentatively identified by their external characteristics as being of the *L. borealis borealis*, *T. mexicana*, and *Myotis velifer incautus* species; the classification was later verified.*

Serum Collections.—Serums for neutralization studies were obtained from 283 *T. mexicana* and from 40 *M. velifer incautus* bats collected. Ten of the 185 bats from Fort Sam Houston exhibited encephalitic manifestations characterized by paralysis, while all of the others bled were apparently healthy bats. The axillary blood vessels were severed and, as the blood collected in the axillary fossa, approximately 0.3 ml. was removed with a 1.0-ml. syringe. The serum was placed in 50 pools (table 1), and tests were conducted for the presence of neutralizing antibodies for rabies virus.

pared, stained with Sellers' stain,¹⁵ and examined for the presence of Negri bodies.

RESULTS

Stained Imprints.—Sellers' stained imprints of brain tissue of all 376 necropsied bats were examined microscopically. Nine isolations obtained from mice inoculated with these brain tissues were identified as the virus of rabies. Of these nine bat brains, five revealed inclusions considered as typical Negri bodies while four were considered negative.

The characteristic inclusion bodies were observed in the cytoplasm of the neurons and extracellularly. They were round or oval, varying in maximum diameter from about 2 to 4 μ , were occasionally multiple, acidophilic, and usually contained a single basophilic granule.

Histology.—Following serial transfer through mice of isolate (1248), mice brains showed typical rabies inclusion bodies with focal areas of encephalitis. These areas were characterized by destruction of neurons, satellitosis, and moderate neuronophagia. There was no evidence of disease except in the areas around the neurons. Neither perivascular lymphocytic infiltrations nor any glial nodules were observed.

TABLE I—Neutralizing Substances for Rabies Virus in Serum of Nonsanguivorous Bats of Texas

Species	Source	Date of 1954 collection	No. of bats	Positive serum pools*	Negative serum pools
<i>Tadarida mexicana</i>	Fort Sam Houston	February	27	3/5 (60%)	2
		June	148	19/24 (79%)	3 (2)†
		October	10	1/1 (100%)	0
<i>T. mexicana</i>	Comal County	March	33	1/6 (16.6%)	4 (1)†
<i>T. mexicana</i>	Uvalde County	July	50	2/5 (40%)	1(2)†
<i>T. mexicana</i>	Bexar County	November	15	1/3 (33.3%)	2
<i>Myotis velifer incautus</i>	Kendall County	October	40	0/6 (0%)	6

*Expressed as number positive/number pools tested. Percentage positive placed in parenthesis. †Pools exhibiting equivocal results.

Demonstration of Virus.—The brain of each bat was aseptically removed and divided along the longitudinal fissure. A 20 per cent suspension, by weight, was made for intracerebral mouse inoculations from one hemisphere and, from the other, two slides containing multiple imprints were pre-

The distribution of neurons affected by the rabies inclusions was fairly typical in that the virus inclusions involved multiple groups of neurons and occurred only rarely in individual neurons.

Isolation of Viral Agent.—Five or 6 Swiss albino mice, 3 to 4 weeks old, were inoculated intracerebrally with 0.03 ml. of 20 per cent brain suspension from each bat

*The authors are indebted to Dr. Rollin H. Baker, assistant curator of mammals at the University of Kansas Museum of Natural History in Lawrence, for the taxonomic classification of these mammals.

TABLE 2—Identification of the Nine Bat Isolates as Rabies Virus by Intracerebral-Neutralization Tests

Bat isolate	Undiluted	Mortality of mice* inoculated with 100 l.d. ₅₀ of virus mixed with indicated dilution of refined antirabies serum (horse)			Mixed with normal horse serum undiluted	
		10 ⁻¹	10 ⁻²	10 ⁻³	100 l.d. ₅₀	10 l.d. ₅₀
Rabies CVS Control	0/6	0/6	0/6	0/6	6/6	3/6
	794	0/6	0/6	0/6	5/5	4/3
	768	0/6	0/6	0/6	6/6	6/6
	1009-1013	0/6	1/6	1/6	4/6	6/6
	1061	0/6	0/6	0/6	6/6	6/6
	1063	0/6	1/6	0/6	6/6	6/6
Rabies CVS Control	1067	0/6	0/6	0/6	6/6	3/6
	1130	0/6	1/6	0/6	6/6	6/6
	1133	1/6	0/6	2/6	6/6	6/6
Rabies CVS Control	1248	0/6	0/6	1/3	6/6	6/6
	Control	0/6	0/6	0/6	6/6	6/6

*The numerator denotes the number of mice which died, the denominator the number of mice inoculated.
---- = No test conducted.

and observed daily for 21 days. Sterility studies were accomplished on all bat brain suspensions using trypticase soy and thioglycollate culture media.

From 335 necropsied bats (*T. mexicana*), 9 (2.7%) virus isolates were obtained. In the initial passage of each of these nine strains, after an incubation period of four to eight days, eight of the nine strains produced signs of viral encephalitis in all of the mice, except 1 which apparently died from trauma. The remaining strain which was obtained from a pool of five bat brains (1009-1013) produced encephalitic manifestations in 1 mouse on the eighth day, 1 on the twelfth day, and 1 nonspecific death, while 2 of the 5 mice showed no signs of disease in a 21-day observation period. Subsequent serial passages were readily accomplished by intracerebral inoculations.

Neutralization Tests.—Serological Studies.—Frozen suspensions of mouse brains infected with fixed rabies virus (CVS)† were used in the neutralization tests. Dilutions containing about 200 l.d.₅₀ of virus were prepared in 10 per cent normal rabbit serum saline and like portions were mixed with an equal volume of varying dilutions of the insectivorous bat serum. For control purposes, refined and concentrated antirabies horse serum, either undiluted or with tenfold dilutions in saline, was included in each set of tests. Additional

normal horse and normal bat serum control mixtures contained 10 l.d.₅₀ of virus per 0.03 ml. of the serum-virus mixture. The serum-virus mixtures were incubated for one hour at 37 C. and one hour at 4 C.; they were then injected intracerebrally in 0.03-ml. amounts into Swiss albino mice (CFw), using 6 mice for each serum-virus mixture. All bat serums were inactivated at 56 C. for 30 minutes prior to testing.

The injected mice were observed for 21 days. Survival of more than 50 per cent of the mice in the 100 l.d.₅₀ group tested against the undiluted serum was regarded as satisfactory evidence of the bat's immunity to rabies and was designated as positive. The results were classified as equivocal if only 50 per cent of the mice survived in the 100-l.d.₅₀ group (table 1).

Antibody studies on the serum of 283 *T. mexicana* bats contained in 44 pools indicated that 27 pools (61%) protected against 100 l.d.₅₀ of the rabies challenge virus standard, five serum pools (11%) exhibited equivocal results, and 12 pools (28%) were negative. Eight (30%) of the positive serum pools neutralized 1,000 l.d.₅₀ or more of fixed rabies virus per 0.015 ml. These findings appear to be statistically significant, offering evidence of the bats' past experience with this disease.

Of the 40 *M. velifer incanus* collected, no serological evidence of rabic infection was observed. Serum from this species is being employed for negative controls in neutralization studies.

Virus Identification.—Intracerebral-neutralization tests were performed (table 2),

†Dr. Hilary Koprowski of Lederle Laboratories, Pearl River, N. Y., supplied the standard strain (CVS) of rabies fixed virus.

using the aforementioned technique, by mixing each of the nine virus strains isolated from the insectivorous bats and fixed rabies virus (CVS) with refined and concentrated antirabies serum, prepared from horses hyperimmunized with fixed virus, undiluted or in tenfold dilutions in saline. It was thus demonstrated that the fixed rabies immune serum neutralized the newly isolated bat strains as well as its homologous virus, whereas normal horse serum gave no protection.

DISCUSSION

Our serological studies would indicate that there is a considerable difference in the prevalence of rabies among the four colonies of free-tailed bats examined, the range being from 16.6 to 79.0 per cent positive for neutralizing substances to rabies virus (table 1). Rabic infection in two of the four colonies is substantiated by the isolation and identification of virus from the brains of bats which were serologically positive for rabies virus-neutralizing substances.

Further evidence to suggest difference in the infection of bat species is displayed by our inability either to demonstrate virus from the brain of, or serum-neutralizing substances in, 40 *M. velifer* netted in Kendall County, Texas. Bailey,¹⁶ of the University of Michigan, reports negative results from pooled brains and salivary gland tissues of a group of bats consisting of 194 *Myotis sodalis*, 3 *Eptesicus fuscus*, and 2 *Myotis lucifugus* collected from Carter Caves in Kentucky. Stained impression smears from this group were negative. Neutralization tests are in progress. A paucity of ecological studies concerning bat migrations and associations seriously impedes the resolution of differences in colony transmission of the disease.

Differences in the levels of neutralizing substances were demonstrated in the groups of bats netted in different months of 1954 at Fort Sam Houston. The bats collected in February were approximately 50 per cent males and 60 per cent yielded positive serological findings, although none were protective against more than 100 l.d.₅₀. Of the June collection, 79 per cent were positive and 23 per cent showed 1,000 l.d.₅₀ protection. Of this group, 95 per cent were females of which 90 per cent were pregnant. As the delivery date for the

pregnant Mexican free-tailed bat approaches, there is a tendency for the males and females to separate. The high percentage of gravid females in the June sampling may have contributed both to the high titer and to the frequency of neutralizing substances in the blood stream.

There appeared to be a difference in the readiness with which various bat strains produced Negri bodies. The virus may undergo some modification in the bat and thus the "negrigenesis" of different strains of virus may be affected. Street virus from a case of furious rabies, after repeated intracerebral passages in a mammal, becomes a fixed virus, one of the characteristics of which is the virtual absence of Negri bodies. Perhaps the unbroken passage through several generations of bats has produced a modified virus with many but not all of the physical properties of a fixed virus; hence, the infrequent Negri bodies. This, together with recent findings by Enright¹⁷ that insectivorous bats may recover following experimental infection with bat rabies virus, and our demonstration of high neutralizing antibody titers, suggests an immunological pattern dissimilar from that previously reported for rabies. This refutes the old adage "the onset of symptoms is tantamount to death." It emphasizes the need for more serological studies.

Bats as vectors of disease in the United States were not considered to be of any public health significance prior to 1953 because Chiroptera's (bats) habits were considered to be totally distinct from those of man.

Enright,¹⁸ of the University of California, has shown that rabies virus isolated from the brain of a naturally infected Mexican free-tailed bat, when inoculated intracerebrally into others of the same species, produced a furious type of rabies. The brain and submaxillary glands of these passage bats contained the virus, and characteristic Negri bodies were found. Transmission of rabies in nature depends on the ability of the virus to multiply in the salivary glands of the infected animal. The isolation of rabies virus from the brain and salivary glands of naturally and experimentally infected nonsanguivorous bats, respectively, offers proof of their ability to transmit the disease.

Frugivorous and insectivorous bats may reside in the same habitat. When bats fly

and shriek during daylight hours or when they develop paralysis, rabies should be suspected.

Such changes in the mode of life, plus evidence of rabies virus in the brain and salivary gland tissues of bats, may be sufficient to incriminate them as direct, active agents in the spread of sylvatic rabies in this country.

SUMMARY

1) Rabies was found in insectivorous bats (*Tadarida mexicana*) in Texas.

2) The isolation and identification of nine strains of rabies virus from the brains of Mexican free-tailed bats during 1954 is reported.

3) Neutralization tests performed in mice on serums of normal healthy bats as well as symptomatic bats revealed the presence of neutralizing antibody for the virus of rabies in a large percentage of specimens.

4) Accumulative evidence would suggest that insectivorous bats may play an important role as a reservoir for sylvatic rabies in Texas, resulting in the occasional infection of man.

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A Dip Technique for the Use of Wright's Stain on Blood Films

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This staining procedure, which was developed in the veterinary clinical pathology laboratory at Washington State College, has been in routine use in that laboratory for more than a year.

In addition to being a simple technique, superior results are obtained relative to intensity of nuclear stain and differentiation of cytoplasmic elements of leukocytes when this method is used. Delicate interlobular filaments of segmented neutrophils are more frequently visible. It makes possible uniform staining which is desirable for comparative study of different bloods. Rapid to perform, it is economical as it utilizes materials which are available commercially and the same solutions can be used repeatedly.

A review of the literature was made for procedures similar to the one herein reported. Several¹⁻³ were found and tried but were unsuitable for the type of blood work done in this laboratory. At the time this paper was being prepared for publication, attention of the author was brought to a similar technique used by the late Dr. Africa, of Manila.⁴

Materials.—The stain used in this labo-

Dr. Pontius was a student at the College of Veterinary Medicine, State College of Washington, Pullman, when this paper was prepared. He is now in practice in Payette, Idaho.

ratory is a standardized Wright's blood stain* purchased as a powder or a solution ready to use. The following formula is employed in the preparation of the solution:

Neutral acetone free methyl alcohol 300.0 cc.
Pure white glycerin 5.0 cc.
Powdered Wright's stain 0.5 Gm.

This solution is prepared by thorough trituration of the stain in the glycerin, followed by the addition of small portions of alcohol until the stain is well dissolved. The stain solution is left standing at room temperature four to seven days and then filtered. After filtration, the stain is ready for use.

A phosphate buffer, pH 6.4, is used.* A satisfactory buffer solution can be made in the laboratory but the pH should be checked to obtain the best results. The following formula is used.*

Monobasic potassium phosphate 6.5 Gm.
Dibasic sodium phosphate 3.2 Gm.
Distilled water 1,000.0 cc.

Pure, 95 per cent ethyl alcohol is used as a dehydrating agent.

Technique.—Three screw-capped Coplin jars are used. They are filled with 95 per cent ethyl alcohol, Wright's blood stain, and phosphate buffer, respectively.

The staining process is carried out by placing the blood film consecutively in the solutions in the three Coplin jars, followed by a brief rinse in running tap water. The sequence and approximate timing are:

Alcohol dehydration 20 to 30 seconds
Stain 1½ to 2 minutes
Buffer 2 to 3 minutes
Water rinse 3 to 5 seconds

After rinsing, stand the slide on edge until dry, or blot dry with filter paper.

Discussion and Results.—The timing period for the stain and buffering process is based on the minimum and may be adjusted as necessary. Slides have been left in the stain and buffer for several hours without interfering significantly with the quality of the stain.

The ethyl alcohol used in the first step of this procedure is for the purpose of dehydrating the film. This prevents minute water droplets from producing artefacts in the red blood cells.

It is important to keep the lids on the Coplin jars at all times when they are not

in use. This will prevent evaporation of the solutions and contamination with dust. Any foreign material, such as dust, entering the stain will produce artefacts on the film. If these appear, the stain should be filtered. The length of time these solutions can be used without changing them has not been determined. When they become low in the jar, add more solution from the stock bottles. The stain carried into the buffer with the slide does not impair the efficiency of the buffer and may even enhance it.

Summary.—A dip technique for staining blood films with Wright's stain is described. The advantages of this method are given, with precautions for maintaining useful solutions.

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Actinomycotic Diseases in Australia.—Both actinobacillosis and actinomycosis in cattle are reportable and compensatable diseases in Australia, as is tuberculosis. Compensation can be obtained for animals which have to be destroyed provided "an inspector of stock" is notified and the animals are first treated as directed.—*J. Agric. South Australia*, June, 1955.

Injected Antibiotics Found in Saliva

When 2 Gm. of aureomycin® hydrochloride in sesame oil was injected intramuscularly into each of 4 calves 7 to 9 weeks of age, the antibiotic was detected in the saliva of 3 in 30 minutes, in all 4 in hourly tests from one to eight hours, in 2 at 12 hours, but in none at 24 hours.—*Science*, Sept. 16, 1955.

Tick Paralysis in Foals.—On four Russian farms, 24 foals developed tick paralysis and 4 died before the cause was discovered. Many *Ixodes ricinus* and some *Dermacentor silvarum* were present on all the horses.—*Vet. Bull.*, Sept., 1955.

*Obtained from Hartman-Leddon Co., Philadelphia, Pa.

U. S. Livestock Sanitary Association — 1955 Meeting

The fifty-ninth annual meeting of the United States Livestock Sanitary Association was held at the Jung Hotel, New Orleans, on Nov. 16 to 18, 1955, with Dr. H. F. Wilkins, Helena, Mont., presiding. The next meeting will be held at the Morrison Hotel, Chicago, Nov. 28 to 30, 1956. Officers elected for 1956 are: Drs. A. L. Brueckner, Baltimore, Md., president; G. H. Good, Cheyenne, Wyo., first vice-president; J. Milligan, Montgomery, Ala., second vice-president; H. U. Garret, Des Moines, Iowa, third vice-president; and Ralph A. Hendershot, Trenton, N. J., secretary-treasurer.

STATUS OF ANIMAL DISEASE IN THE UNITED STATES

Vesicular exanthema which occurred in 41 states in 1952-1953 has been contained until quarantines remain in only six states (California, New Jersey, Massachusetts, New York, Rhode Island, and Connecticut). Active infection has occurred in only two states since January, 1954—one premise in South Carolina, 11 premises in California—with a few recovered animals remaining on premises in four states.

In September, 1955, 83 per cent of garbage feeders were cooking the garbage. Over half of the 218,000 hogs being fed raw garbage were in one state (New Jersey) and all but 25,000 were in five states.

Anaplasmosis is spreading, especially in the South. Eradication attempts, such as those in Hawaii where it recently appeared, should demonstrate the value of the complement-fixation test.

Mucosal disease complex of cattle has been reported in over 20 states. The ARS is pooling research with state and private organizations in an attempt to learn the cause and to develop control methods. Canada is assisting. Serological tests of affected animals were negative to rinderpest which these diseases somewhat resemble.

Scabies of sheep and of cattle, which threatened the existence of these industries before it was nearly eradicated at tremendous cost, has again been spreading. Sheep scabies has been reported in 23 states in 1955 (including states from South Dakota to Texas and east to New England). In cattle, it occurred in six states, mostly in

Colorado where, after being eliminated it reappeared on two premises in October.

Scrapie, the chronic neurosis of sheep and goats, has been diagnosed in 34 flocks in 11 states since 1947. In California, Ohio, Illinois, Connecticut, and New York, prior to July 1, 1954; again in those states and in Oregon, Indiana, Texas, Tennessee, and Georgia during the past fiscal year; and in one flock in Iowa, one in Tennessee and eight flocks in Indiana since July 1, 1955. All known infected flocks have been slaughtered; exposed sheep sold from infected flocks have been or are being traced and slaughtered, and 1,580 indirect contact flocks in 47 states are being periodically inspected.

Bluetongue, present in Texas sheep since 1948, was also reported in six other states—Arizona, New Mexico, California, Oklahoma, Missouri, and Colorado, in 1955. Within the previous two years it had also been reported in Utah, Nebraska, and Kansas. A vaccine has been widely used in the past two years.

Cattle tick fever, long contained in a narrow buffer zone on the Texas-Mexico border, is now nearly eradicated.

Animal disease reporting, under the direction of the Animal Diseases Eradication Branch of the ARS will be undertaken in 1956.—R. J. Anderson, D.V.M., Agricultural Research Service, Washington, D. C.

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THE BOVINE MUCOSAL DISEASES

1) In California, both a dairy cattle and a beef cattle syndrome occur and could be transmitted to young cattle but not to adults. They are quite similar clinically and etiologically to the Colorado disease. The etiological factors of all three, evidently viruses, on cross-immunity test are apparently identical. It was proposed that all three syndromes be included under the name of "infectious bovine rhinotracheitis."—D. G. McKercher, D.V.M., California.

2) In Colorado this disease, first recognized as a separate entity in 1950, now is the area's most important feeder cattle disease. It usually occurs only after they have been on feed for about 30 days and is not transmitted to cattle not "on feed" even when they are in close proximity. It sometimes spreads rapidly, most cases oc-

curring in ten days, or they may occur in slow sequence up to forty days. There is lacrimation, salivation, mucopurulent nasal discharge, a dry cough, and pregnant heifers often abort. Dyspnea or diarrhea occur occasionally. The postmortem findings include: rhinitis (67%); sinusitis (45%); laryngitis (54%); tracheitis (100%); pneumonia (77%—but seldom present in nonfatal cases); splenitis (17%); and abomasitis (50%). Erosion of the mucosa is seldom found and lameness is not noticed. The morbidity may be 50 per cent but the mortality is about 3 per cent.—*R. Jensen, D.V.M., Colorado.*

Experimental Infection.—Of 15 young fattening cattle inoculated with nasal washings, 9 developed a nasal discharge and fever, 3 a nasal discharge only, and 3 remained normal. The incubation period was three to six days and recovery took about four days. The animals were then immune to both the Colorado and California syndromes.—*T. L. Chou, D.V.M., Colorado.*

3) The virus diarrhea-Indiana (*see pp. 1-5*) has a high (100%) morbidity but a low (5-10%) mortality. The course of the disease in a herd is four to six weeks. Unlike other forms of this group, it can recur in four months. Lameness, which does not occur in the New York form of virus diarrhea, is common. Abortions occur but not in the New York form. Oral lesions are present in 10 per cent of the animals. (Erosions on the dorsum of the tongue occur only in the Iowa form of mucosal disease.)—*W. R. Pritchard, D.V.M., Indiana.*

RINDERPEST

Historically, this is the world's worst bovine disease. It has a morbidity of nearly 100 per cent and a mortality of 90 to 100 per cent. Affected animals show lacrimation but little nasal discharge, cough, or salivation, and no lameness. After about four days of constipation, diarrhea and abdominal pain become progressively severe. Leukopenia persists whereas in the mucosal diseases it is usually soon followed by leukocytosis. Oral lesions start as small white foci on the lips and under the tongue; they never occur on the dorsum. Lesions are rarely found in the first three compartments of the stomach. Congestion,

hemorrhage, and necrosis of the epithelium occur, usually in a linear pattern, especially in the abomasum and large intestine but also in the small intestine. The Peyer's patches usually slough. There is almost a complete destruction of lymphocytes in the spleen and lymph nodes, which explains the severe leukopenia. Death usually occurs in six to 12 days.—*Lt. Colonel F. D. Maurer, V.C., U.S. Army.*

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DISEASES OF SWINE (COMMITTEE REPORT)

A survey of the 48 states indicates that only two are now without satisfactory garbage-cooking regulations.

Hog cholera prevalence has receded for the second successive year; 28 states reported a decrease, two states an increase (only 1 a major swine-producing state), and the other states no change.

Postvaccinational disease was reported to have been a serious problem in 17 states, in five following use of the virulent virus with serum, but in 12 following use of modified virus vaccines. Of the four major swine-producing states reporting trouble, the disease followed use of the modified vaccine in two states, of virulent virus in one, and of both products in one state.

Preference for the virulent virus plus serum method of immunization was expressed by the sanitary officials of 12 states, for modified vaccines by 21, while in 30 states the officials recommend that virulent virus be outlawed.

Swine erysipelas was less prevalent than in 1954, only eight states, none of which was in the Cornbelt, reporting an increase. Chronic erysipelas polyarthritis has become the major cause of swine carcass condemnations.

Atrophic rhinitis has been increasing in nine states and was unchanged in 15 of the states reporting.

Leptospirosis is more prevalent in six states, less prevalent in 12, and unchanged in 16 of the states.

Transmissible gastroenteritis is more prevalent in three, less in four, and unchanged in 19 states.

Little change was reported in other swine diseases.—*J. W. Greene, D.V.M., Indiana.*

(To be continued in the January 15 issue)

What Is Your Diagnosis?

Because of the interest in veterinary radiology, the JOURNAL publishes this month, and will continue to do so for the next several issues, a case history and accompanying radiographs depicting a diagnostic problem.

Make your diagnosis from the picture below—then turn the page ▶



Figure 1

History.—A young pony colt developed a painful supporting leg lameness in the right hindleg. The colt was growing well and had been healthy except for an attack of navel ill shortly after birth. A ventrodorsal radiograph of the pelvis was taken (fig. 1).

(Diagnosis and findings are reported on next page)

Here Is the Diagnosis

(Continued from preceding page)

Diagnosis.—Coxitis and possible abscess of the thigh.

Comment.—Notice the bone changes (fig. 2) in both the head of the femur and the acetabulum (left). The opaque shadows (arrow) in the muscles of the region were believed to indicate an abscess. (The presence of an abscess was later confirmed.)



Figure 2

Our readers are invited to submit case histories, radiographs, and diagnoses of interesting cases which are suitable for publication.

This case was submitted by Drs. John P. Manning, Harry Hardenbrook, and Lloyd E. Boley, Department of Clinics, College of Veterinary Medicine, University of Illinois, Urbana.

Virus Hepatitis in Ducklings

L. E. HANSON, D.V.M., M.S., and
J. O. ALBERTS, V.M.D., Ph.D.

Urbana, Illinois

A highly fatal disease of young ducklings¹ in the duck-raising sections of New York State was first reported in 1950 by Levine and Fabricant.² Confirmation of these findings is presented herein with the diagnosis of this infection in another area of the United States. Aspin and McLauchlan³ also described this disease in England in 1954.

In April, 1953, a loss of one third of a brood of ducklings between 1 and 2 weeks old was observed on an Illinois duck farm. A therapeutic level of sulfaquinoxaline was added to the mash because of a past history of a *Salmonella typhimurium* infection on this farm, but without benefit. Bacteriological examinations of the affected ducklings submitted to the laboratory were negative for *Salmonella*. In the following hatch, the ducklings were apparently healthy and negligible losses were sustained. The next brood, however, had significant losses beginning at 1 week of age.

Signs.—The clinical onset of the infection was sudden, with affected ducklings showing listlessness, incoordination, and sprawling on the keel or falling on the side. Death usually followed within one to three hours after the appearance of convulsions and opisthotonus.

Most of the outbreaks occurred in broods of ducklings 5 to 10 days old, but in some of the last hatches the losses occurred first in 3-day-old birds. Mortality of the affected broods varied from 8 to 37 per cent.

Adult breeding stock and ducklings 5 weeks of age or older did not show signs of infection at any time following the first indication of the disease on the premises.

Lesions.—The principal gross lesion of the disease was the consistent mottling of the entire surface of the liver with petechial and ecchymotic hemorrhages. Frequently, the liver was also markedly swollen. A granular, yellow exudate was present on the air-sacs of some of the ducks examined.

Etiology.—Bacteriological examination of

From the Department of Veterinary Pathology and Hygiene, College of Veterinary Medicine, University of Illinois, Urbana.

tissues from several groups of sick ducklings was negative for pathogenic organisms except for isolation of *S. typhimurium* from 2 of 20 in one group.

Infected liver and lung tissue was suspended in nutrient broth and treated with penicillin and streptomycin. A portion of this suspension was inoculated into the allantoic cavity of 10-day embryonating chicken eggs. Some embryos died two days after reincubation, while other embryos died on the fifth and sixth day. The skins of embryos succumbing after two days of reincubation were congested and hemorrhagic, appearing similar to those of embryos dying from Newcastle disease. Embryos dying on the fifth or sixth day were small and noticeably edematous. In subsequent passages, the embryos became increasingly dwarfed and the allanto- amniotic fluid presented a green-tinted discoloration. The livers of most embryos were studded with areas of focal necrosis.

In repeated hemagglutination tests, the harvested allanto-amniotic fluid failed to produce hemagglutination of chicken red blood cells. Serum obtained from ducks which survived the infection, although negative to the Newcastle hemagglutination-inhibition test, was capable of neutralizing the duck virus in chicken embryo- neutralization tests. Newcastle disease immune serum was incapable of neutralizing the duck virus.

Anti-duck hepatitis serum⁴ was administered to 40 ducklings of a 7-day-old brood in which a few individuals had died after showing typical signs and lesions. The serum-inoculated ducks were kept in a pen adjacent to the uninoculated ducklings. All ducklings which received the serum remained alive, while excessive losses occurred in the untreated ducklings.

SUMMARY

An agent was isolated from young ducks on an Illinois duck farm in 1953 which was indistinguishable from duck virus hepatitis according to chicken embryo- and serum- neutralization studies.

References

- Levine, P. P.: Duck Virus Hepatitis, in "Diseases of Poultry," edited by H. E. Biester and L. H. Schwarte. 3rd ed. Iowa State College Press, Ames, Iowa, 1952.
- Levine, P. P., and Fabricant, J.: A Hitherto-Un-

⁴This serum was obtained from Drs. P. P. Levine and E. Dougherty, III, Eastport, N. Y.

described Virus Disease of Ducks in North America. Cornell Vet., 40, (1950): 71-86.

³Aspin, F. D., and McLaughlin, J. D.: Duck Virus Hepatitis. Vet. Rec., 66, (1954): 456-458.

Dystocia in a Carabao

JOSE A. SOLIS, D.V.M., and
JOSE B. ARANEZ, D.V.M.

Quezon City, Philippines

The carabao or Philippine water buffalo, *Bubalus bubalis*, Lydekker, belongs to the family Bovidae. Primarily a work animal, it is rugged and hardy, weighing about 1,000 to 1,500 lb.

Dystocia in the carabao appears to be rare, this being the first case that has come to the attention of the writers during the past few years.

Case History.—On the afternoon of March 24, 1955, a carabao cow which had been in labor since early morning was presented at the veterinary hospital, University of the Philippines, at Diliman, Quezon City.

A serosanguineous vaginal discharge was apparent but abdominal contractions had ceased.

The cow was in fairly good physical condition. Her body temperature, pulse, and respiration were normal. She was given 15



Fig. 1.—The carabao fetus delivered by forced extraction. Note the contortions of the head, neck, body, and extremities.

Dr. Solis is associate professor and acting head, Department of Veterinary Anatomy, and teaches veterinary obstetrics in the College of Veterinary Medicine, University of the Philippines, Quezon City. Dr. Aranez is instructor in veterinary medicine and surgery and is in charge of the Large Animal and Ambulatory Clinics in the same institution.

ml. of 2 per cent procaine hydrochloride epidurally. What appeared to be the hind feet of the fetus were found close to the vulva, pointed toward the left side. The shanks, hocks, and tail could be felt in the pelvis in the right iliac region. However, in the left iliac region, two more feet were encountered, directed caudally with the toes turned upward.

With four legs close together and all seeming to point toward the genital opening, a ventral or sterno-abdominal presentation was suspected. Twin pregnancy was also considered because the elbows were so formed that they felt like a set of hocks belonging to a second fetus.

The calf was dead but not emphysematous, so forced extraction was decided upon.

Liquid petrolatum was used to lubricate the genital passage and the operator's hand. When no amount of repelling or rotating could move the fetus, the hind pasterns were secured with Manila rope and, using an "eight-man" power to produce. It weighed about 43 lb. The fetal duce a slow and steady pull, the calf was membranes were expelled with the calf.

The cow suffered only mucosal lacerations of the vulva. A douche of about 3 qt. of mild potassium permanganate solution (1:1,000) was administered to cleanse the genital tract, and dicysticin,* 1,200,000 units, was given intramuscularly. She recovered satisfactorily.

The carabao calf, a female, was curled up in a peculiar manner (fig. 1). With the neck turned upside down, the back of the head was drawn toward the chest. The trunk was strongly convex, with the highest point of curvature located about the middle of the thoracic region. The left side of the body bulged outward while the opposite side caved in, especially at the anterior part of the thorax. As a result of these contortions, the right legs appeared much longer than their left counterparts.

*Dicysticin is a product of E. R. Squibb and Sons, New York, N.Y.

Status of Psoroptic Cattle Scabies

Psoroptic cattle scabies was first reported from the Chicago Stockyards on Nov. 11, 1954, in Colorado cattle. The disease was found in 16 herds, resulting in the quarantine of ten counties in Colorado. The eradication program initiated included com-

pulsory treatment of all cattle in the quarantine area either by dipping or the "box spray," using BHC or lindane dip, 0.075 per cent *gamma* isomer. By June 30, 1955, state and federal inspectors had supervised the treatment of 356,186 cattle in 4,783 herds, and Colorado was allowed to lift its quarantine. Infested cattle were also found in five counties in Kansas and 3,862 cattle in 22 herds were treated. Cattle from infested areas were traced to 16 states, but only in Texas, Nebraska, Kentucky, and Illinois were more affected cattle found.—U.S.D.A., Aug. 18, 1955.

A New Potent Disinfectant

Methyl bromide, as a prospective disinfectant for poultry litter, was tried in the laboratory and under semifield conditions against 3 resistant parasites, *Aspergillus fumigatus* spores, *Ascaridia galli* eggs, and *Eimeria tenella* oocysts. At 1 cc. per quart of water it was very effective in the laboratory, and in the field when applied dry at 1 lb. per 100 square feet. However, because of the hazards in handling, methyl bromide is not recommended for use at present.—*Poult. Sci.*, May, 1955.

X-Ray Therapy for Labial Granuloma in a Cat

G. C. BUTLER, D.V.M.

Beaumont, Texas

Labial granuloma, or so-called "rodent ulcers," of the cat's lip is not of neoplastic origin but is a chronic inflammation, the etiology of which is not known. Local applications¹ and x-ray therapy² have been recommended.

A 4-year-old cat had been affected with this condition for a year and a half. Only temporary relief was obtained from treatment with antibiotic ointments, chromic acid, potassium permanganate, iodine solutions, and other similar preparations.

On Dec. 10, 1954, the cat was given x-ray therapy—a 100-r dose. The response was temporary so the dose was increased to 150 r and was repeated on January 11 and 20. Ten days later, the lip appeared normal. No other treatment was used with the excep-

tion of silver nitrate (5%) which was needed to cauterize the cutaneous blood vessel to control hemorrhage. Five months later, there had been no recurrence of the condition and the cat's appetite and general appearance were greatly improved.

References

¹Therapeutic Notes: Observations on Feline Practice. Jen-Sal J. (May, 1953): 14.

²McClelland, Robert B.: X-Ray Therapy in Labial and Cutaneous Granuloma in Cats. J.A.V.M.A., 125, (Dec., 1954): 469-470.

Unusual Bovine Left Coronary Artery

An unusual origin for the left coronary artery was found in a Brown Swiss-Angus crossbred calf about 4 months old. The right and left coronary arteries had a common trunk from the anterior surface of the aorta. The origin and position of the common trunk was similar to the first inch of the usual right coronary artery. It di-



Fig. 1—Frontal section of heart a little above the coronary groove: (1) common trunk of origin of coronary arteries; (2) right coronary artery; (3) left coronary artery; (4) wall of aorta; (5) coronary sinus; (6) right atrioventricular orifice; (7) left atrioventricular orifice; (8) pulmonary artery.

vided at the surface of the heart into right and left coronary arteries. The right artery had the usual course, the left crossed the anterior surface of the pulmonary artery to enter the left coronary groove. Other than its unusual origin and its relation to the pulmonary artery, its course and distribution were typical.—W. M. McLeod, D.V.M., Department of Anatomy, School of Veterinary Medicine, Kansas State College, Manhattan.

Dr. Butler is a general practitioner in Beaumont, Texas.

Nutrition

Status of Garbage-Feeding Program

During August, 1955, active vesicular exanthema was present in only two premises in the United States, both in California. In 18 states, no raw garbage was being fed to swine and in only six states could the feeding of raw garbage be called extensive, varying from 4,950 head in Vermont to 132,011 head in New Jersey. The top garbage-feeding states were California, 226,000; New Jersey, 222,000; and Massachusetts, 158,000 head. Of the nearly 1.5 million swine being fed garbage in the nation, 84 per cent were receiving cooked garbage. Semimonthly inspection of garbage-feeding premises were 100 per cent in 22 states and over 90 per cent in 12 other states.—U.S.D.A., Aug. 31, 1955.

A Zinc Feeding Experiment

When four lots of 10 pigs each, averaging 28 lb., were fed different levels of zinc and calcium at Michigan State University, their average weights after eight weeks were: on a high calcium, no zinc ration—57.9 lb.; high calcium with zinc sulfate—87.0 lb.; low calcium with no zinc—78.7 lb.; and low calcium plus zinc sulfate—98.2 lb. The two groups which received no zinc showed parakeratosis.—*Prairie Farmer*, Sept. 3, 1955.

Iron for Anemia in Young Pigs

An experiment, using ten groups of 4 pigs each, which were raised indoors until 8 weeks old, indicated that an iron-dextran complex injected intramuscularly at 7 days of age was as effective in preventing anemia as oral doses of iron pyrophosphate given daily for seven days, commencing at 7 days of age. Intramuscular injections of a suspension of ferric phosphate were ineffective. Both preparations contained 100 mg. of iron in the 2-ml. dose used. Two of the 40 pigs treated died; both (controls) had received no iron and were less than 3 weeks old.

The hemoglobin of the control group and the group given ferric phosphate intramuscularly decreased from about 11 Gm. at 5 weeks of age, then recovered to about 8 Gm. at 8 weeks. With the two effective treatments, the hemoglobin decrease was reversed after treatment and by the fourteenth day was about equal to

the level at birth, after which it decreased to about 8 Gm. at 5 weeks when natural recovery began.—*Vet. Rec.*, May 7, 1955.

Anemia in Indoor and Outdoor Pigs

Pigs (32) farrowed and raised indoors until 8 weeks of age were given 2 ml. of iron pyrophosphate solution (30 mg. of iron to each pig) by mouth daily from 4 to 11 days of age. Another group (40) were removed when 4 days old to a clean grass lot and were given no iron therapy. All were given access to a creep meal after they were 14 days old. The pigs were weighed and their hemoglobin was determined once a week.

Until 14 days old, the hemoglobin in the indoor group (11.26 Gm./100 ml.) was greater than that of the outdoor group (9.8 Gm./100 ml.), but from day 21 to day 56, this hemoglobin index was decidedly reversed. There was little difference in the weight of the two groups until after 21 days of age but at 56 days, the indoor group averaged 32.3 lb., the outdoor group 39.6 lb. At 8 weeks, the indoor group was eating 5.9 lb. of meal per week, the outdoor group 9.5 lb. per week. The hemoglobin level curve and the growth curve were remarkably similar for the two groups.—*Vet. Rec.*, July 16, 1955.

Effect of Injected Copper Glycinate

To test the toxicity of copper glycinate (copper amino acetate) solution, injected subcutaneously in sheep as a therapeutic measure in copper deficiency, 68 wethers, 6 months old, were injected subcutaneously on the inner surface of the thigh with doses of 2 ml. to 24 ml. of a solution containing 2.5 mg. of copper per milliter. The dose of copper glycinate, therefore, varied from 5 mg. to 60 mg. The local reaction increased with the dosage. By the second day, 20 animals were lame and several carried the injected limb. Of the 9 which received the 24-ml. dose, 3 died within a week and on necropsy revealed a thick, yellow exudate in the subcutis of the region and acute inflammation of the liver and abomasum. Except for a transitory lameness and moderate local reactions, those receiving 1.1 mg. or less of copper per kilogram of body weight showed no evidence of toxicity.—*Austral. Vet. J.*, June, 1955.

The Journal Enters a New Epoch

With this issue, the JOURNAL becomes a semimonthly publication and takes on a somewhat new look. As announced in September, it will be issued, henceforth, as of the first and fifteenth of each month.

The prime reason for this increased frequency is to reduce the bulkiness of each issue while accommodating an increased total volume each year. Human nature being what it is, new things attract attention and curiosity begets investigation. When the JOURNAL arrives twice instead of once a month, it is apt to be at least thumbed through twice as often and, being smaller, its contents should be more completely noticed. Another reason for the change is that some of the news and items of current interest will be two weeks fresher.

The annual "Proceedings Book" of the AVMA, which has contained the material presented at the annual convention, will be discontinued and most of that material will again be published in the JOURNAL. The "Proceedings Book" is being discontinued because its contents have, apparently, been less utilized when so published; also because of the large expense involved in its issuance. The "Proceedings of the Business Sessions and Preconvention Conference" will continue to be published as Part 2 of an early issue of the JOURNAL following each annual meeting and will be mailed to members only.

Aside from the new cover design and a change in the masthead and the department heads, there will be few physical changes. The volume sequence will continue on a semiannual basis but the numbering of issues will change. Instead of continuing from No. 945 (the December, 1955, issue), the issues will be numbered from 1 to 12 in each volume.

Other changes beginning with this issue are:

A new department, "Organization Section," will contain news and activities of the AVMA, the Women's Auxiliary, and Student Chapters, all of which were previously grouped in "The News" section. "The News" section will now contain reports of meetings of the constituent associations, meetings of allied groups, deaths, and other general news. The birth section has been discontinued.

The first responsibility of any publication is to its readers. As the profession has grown, so have the fields of interest of its members and to present a variety of articles to cover these interests, without creating an unreadable bulk of printed matter, is an increasing problem. Therefore, duplication of articles and repetition or the inclusion of relatively unessential material within articles must be avoided. The objective is a maximum of adequate, readily assimilable information in a minimum of space. Authors should bear in mind Voltaire's apology to a correspondent to the effect that if he'd had more time he would have written a shorter letter. Scientific articles, like merchandise, are more acceptable when presented in orderly, handy-sized packages.

The editors will welcome comments on the changes that have been made.

The Bovine Mucosal Disease Complex

Variable and puzzling diseases have undoubtedly occurred since the dawn of medicine but rarely have they aroused more concern than has the *rinderpest-like group*, known as the mucosal disease of cattle, which have developed on this continent in recent years.

Since 1946, somewhat similar conditions variously designated as virus diarrhea-New York, mucosal disease in Iowa, upper (anterior) respiratory disease in California, infectious rhinotracheitis in Colorado, and virus diarrhea-Indiana (see pp. 1-5) have been described. Mucosal disease also has been described in Alabama (pp. 21-26) and Ontario (p. 15), and has been reported in about half of the states.

Clinically, at various stages some of these conditions may resemble malignant catarrhal fever, shipping fever, mycotic stomatitis, or even calf diphtheria or coccidiosis. Etiologically, while there seems to be no cross-immunization among the others, there seems to be a close relationship between the anterior respiratory (California) and rhinotracheitis (Colorado) syndromes.

However, each of these diseases, unlike rinderpest, either has a relatively low morbidity or mortality and, fortunately, none of them seems transmissible to man or other species.

Current Literature

ABSTRACTS

Leucocytozoon Infection in Turkeys

Histopathological studies were made of organs of turkeys with chronic infection with *Leucocytozoon smitii*. An original description of a schizont stage which occurred only within hepatic parenchymal cells is given. Prominent histological lesions attributable to chronic systemic infection were hepatic hemosiderosis and lymphocytic infiltration. By contrast, local host tissue reaction did not occur in relation to any stage of the parasite. The significance of the histopathological alterations in relation to clinical aspects of the disease are discussed.—[J. W. Newberne: *The Pathology of Leucocytozoon Infection in Turkeys with a Note on Its Tissue Stages*. *Am. J. Vet. Res.*, 16, (Oct., 1955): 593-597.]

Response of Ferrets to Egg-Adapted Distemper Virus

The response of vaccinated young ferrets, from immune and susceptible dams, to challenge with virulent distemper virus was studied. Young ferrets from dams susceptible to distemper were receptive to immunization at 8 days of age; whereas those from immune dams were refractive to vaccination until 36 to 47 days after parturition.—[J. R. Gorham and R. L. Ott: *The Response of Newborn and Young Ferrets to Intranasal Administration with Egg-Adapted Distemper Virus*. *Am. J. Vet. Res.*, 16, (Oct., 1955): 571-572.]

Factors Responsible for Internal Hemorrhages in Hams

Preliminary studies have been conducted relative to a defect called internal hemorrhage in hams. These studies have included laboratory observations and initial investigations in two packing plants. The objectives of the plant studies were: (1) to determine the incidence of this type of defect; (2) to determine the relation of the hemorrhage to the hip joint and its associated structures; (3) to determine what factors were associated with the appearance of this defect; and (4) to determine, as far as possible, the economic importance of it to the livestock and meat industries.

The data obtained, due to limited numbers of observations and other factors, must be considered as suggestive evidence and certainly not conclusive. It suggests that this condition is responsible for more defective hams at the green grading table than all other defects. Of 88 hams with internal hemorrhages in one plant, 88 per cent were in the shackled leg. Of the 366 examined in another plant, 97 per cent were in the shackled limb. These data suggest that an association exists between internal hemorrhages and shackling. Other data suggest that a relationship exists be-

tween torn round ligaments, ruptured joint capsules, and shackling. The anatomical evidence suggests that the internal hemorrhage defect may have developed in a ham as follows: Some external force, possibly shackling although other factors may be involved, stretched the hind limb of the living hog in such a manner that the dorsal crus of the round ligament of the femur and the joint capsule of the hip joint were torn. This resulted in a tearing of the branches of the acetabular artery which are located in the ligament. Hemorrhage from these arteries occurred into the joint cavity. The blood and bloody synovial fluid emerged from the joint capsule through the tear in the joint capsule and followed the intermuscular septum to the surface of the ham.

Reports received from cooperating plants have shown the loss involved in processing a ham with an internal hemorrhage to be approximately \$1.50 per ham. With an incidence of 2 per cent, the estimated loss for a plant which processes 10,000 hams daily would be \$300 per day or \$75,000 per year. On a national basis, this loss was calculated to have been approximately \$3,200,000 last year. These figures do not include hams having internal hemorrhages which were not visible on the surface of the ham.—[R. L. Kitbell, W. J. Auman, D. P. Mossberg, and P. A. Anderson: *Studies of Factors Responsible for Internal Hemorrhages in Hams*. *Proc. 7th Res. Conf., American Meat Institute*, March 24-25, 1955.]

Resistance of Calf Scour Organisms to Antibiotics

This paper shows the development of a cross resistance by *Escherichia coli*, *Pseudomonas aeruginosa*, and a *Salmonella* sp. to the tetracycline group of antibiotics. Tetracycline, chlortetracycline, oxytetracycline, neomycin, and polymyxin B were the antibiotics tested. Neomycin and polymyxin B were found to kill the organisms which were resistant to the tetracycline group. The organisms tested were isolated from active cases of calf scours.—[F. S. Barr, P. E. Carman, and T. B. Clarkson: *Resistance of Calf Scour-Producing Organisms to Broad-Spectrum Antibiotics*. *Am. J. Vet. Res.*, 16, (Oct., 1955): 515-516.]

Effect of Piperazine-HCl on Larvae of *Ascaris suum*

Piperazine-HCl administered orally before and after feeding mice infective *Ascaris suum* eggs prevented the hatching larvae from invading the blood stream and the lungs. Fed after larvae invasion of the blood stream, the drug did not prevent invasion of the lungs and severe pneumonia. Intraperitoneal injections of piperazine-HCl had slight effect on the migrating larvae and there was no evidence that the drug, in the amount employed, was excreted in the milk in sufficient quantities to affect the newly hatched larvae in the intestines of suckling mice.—[H. W. Brown and

K. F. Chan: The Effect of Piperazine-HCl on Migrating Larvae of Ascaris Suum Goede 1782. Am. J. Vet. Res., 16, (Oct., 1955): 613-615.]

FOREIGN ABSTRACTS

Intoxication of Domestic Animals by Insecticides

Actual cases of poisoning of domestic animals are rare, considering the thousands of tons of insecticides lavishly used; yet potential hazards exist which should be carefully studied.—[J. Guilbon: *Intoxication of Domestic Animals by Insecticides. Rev. Path. Gén. et Comp.*, 55, (1955): 1186-1203.]—J.P.S.

Tumors of Animals

The occurrence of tumors of various organs in rabbits, guinea pigs, rats, mice, birds, fish, reptiles, and amphibians is described. In domestic animals the tongue, esophagus, true stomach, pancreas, trachea, and hypophysis are most commonly affected.

The pig usually shows tumors of the connective tissues, mice and sheep chiefly of the epithelial tissues, and in poultry the ovaries are usually affected. In dogs, dysfunction of the ovaries induces the development of tumors of mammary glands.—[Charles Lombard: *Comparative Oncology (A Continuation). Rev. Méd. Vét. (Toulouse)*, 106, (1955): 523-534.]—J.P.S.

New Treatment for Ketosis

The writer reports successful treatment of 30 cows with primary ketosis with a 1:2,000 solution of permanganate of potassium, orally, in doses of 500 to 700 cc. given two or three times daily. He advances the concept that oxidation of the ketone bodies is responsible for the disappearance of the condition when cows are put out to pasture. The value of exercise in the treatment of ketosis is also based on oxidation of the ketones according to the writer. With the KMnO₄ treatment, cows improve rapidly, often recovering within 12 to 24 hours. Some animals also require intravenous glucose, however.—[J. Cardassis: *Sur L'Emploi du Permanganate de Potassium dans le Traitement de L'Acetose de la Vache Laitiere. Réc. med. vét.*, (Aug., 1955): 554-574.]—R.F.V.

Acarids in Cattle in Chile

Different species of acarids (*Sarcoptes scabiei* var. *bovis*, *Psoroptes equi*, var. *bovis*, *Chorioptes bovis*, and *Demodex bovis*) may cause scabies in cattle.

The only species that has been found in Chile is *S. scabiei* which affects adult cattle as well as calves. Initially, the lesions are localized in the perineum, udders, testicles, and the inner face of

the thighs. If the condition is not controlled, it may spread to other parts of the body. Pruritus, crust formation, and the progressive character of the lesions are the main clinical features.

The diagnosis is based on finding the parasites by scratching deep into the skin. The most efficient drug for treatment is gammexane.—[Isaias Tagle: *Sarna sarcoptica del Vacuno. Bol. Chileno de Parasitol.*, 10, (April-June, 1955): 32.]—G.T.E.

Hyaluronidase for Bovine Streptococcal Mastitis

The author describes experiments made with an enzyme called hyaluronidase, which has been used on a large scale in human medicine.

The enzymatic effect of hyaluronidase consists of the hydrolysis of hyaluronic acid, a polysaccharide which is a part of the cementing obstacle to absorption of liquids, and especially various medicines given hypodermically.

Hyaluronidase removes this obstacle, diminishing the viscosity of the substance for 24 to 48 hours, after which the "obstacle-substance returns to the prior form." The above treatment favors the absorption of antibiotics and sulfonamides by the mammary parenchyma in the treatment of bovine streptococcal mastitis.

Experiments have been made with 14 cows affected with subacute streptococcal mastitis which were effectively treated by giving them an intramammary infusion of 150 I.U. of hyaluronidase diluted in 50 cc. of physiological saline solution followed by 0.5 Gm. of dihydrostreptomycin and 200,000 units of penicillin at 24-hour intervals.—[Domenico Sansoe: *Hyaluronidase in the Treatment of Bovine Streptococcal Mastitis (La ialuronidasi ad antibiotici nella terapia della mastite streptococca bovina). Gaz. Vet., Milano*, (April-June, 1955): 1-4.]—ANTHONY SUNARA.

A New Method of Udder Anesthesia

The external spermatic nerves from lumbar nerves 3 and 4 were injected on each side in the connective tissue space between the major and minor psoas muscles. The anesthetic also infiltrated the ilio-inguinal nerve, the lateral cutaneous nerve of the thigh, and the corresponding rami communicans of the sympathetic system. A 4- to 5-inch needle was inserted 2 1/2 inches from the midline at an angle of 60 degrees from the median plane. The needle was passed between the transverse processes of the third and fourth lumbar vertebrae until the body of a vertebra was struck, and 25 cc. of 3 per cent procaine was injected on each side. This produced anesthesia of all of the udder except the escutcheon and the adjacent region down to the base of the hind teats. This area was anesthetized by blocking the mammary branches of the pudendal nerves below the vulva. Anesthesia was accompanied by vasodilatation, elevation of the temperature of the udder, and relaxation of the teat sphincters. The method is advocated for the

treatment of mastitis, but the clinical evidence offered is inconclusive.—[B. A. Bashkirov, *Leningrad Institute for Advanced Training of Veterinary Practitioners: Anesthesia of the Bovine Uterus and Its Therapeutic Properties. Veterinariya*, 32, (Jan., 1955): 74-77.]—R.E.H.

Diphyllobothriasis in Man

Diphyllobothrium latum infection has been found to be endemic in some areas of the lake region in the South of Chile. Two new cases in man are described. Both patients were from Santiago but they often traveled to the endemic area for fishing and frequently ate raw or insufficiently cooked fish. Both had digestive and nervous symptoms and one also had an allergy-type skin eruption. There were no hematological alterations in either of these men. The diagnosis was made in one of the patients by finding the typical ova in the feces. In the other case, a segment of the tapeworm was spontaneously eliminated and identified at the laboratory. Both patients were completely relieved through the elimination of the worm by atebrin treatment.—[Jacob Faigenbaum y Raul Donckster: *Consideraciones clínicas y epidemiológicas en relación con dos nuevos casos de diphyllobothriasis humana. Bol. Chileno de Parásito*, 10, (Jan.-March, 1955): 15.]—G.T.E.

Amputation of Bovine Uterus

Indication and operative technique for amputation of the prolapsed uterus in cows after parturition are discussed. Prognosis of the operation, which may be performed under unfavorable conditions and sometimes under difficult circumstances, is favorable. The author describes 8 cases in which the postoperative course was without complications.—[H. J. Heidreich: *Amputation of Uterus in Cattle. Berl. u. Münch. Tierärztl. Wochenschr.*, 11, (1955): 185.]—F.K.

Puerperal Disturbances After Cesarean Section in Cattle

General health and fertility subsequent to cesarean section in cattle are not always satisfactory, as 31 per cent of those operated on in the clinic remained infertile. The postoperative disturbances are not generally due to the development of metritis and peritonitis. It appeared from bacteriological studies that the uterine mucosa was disturbed in 80 per cent of the animals due to retention of the placenta, delayed involution of the uterus (especially manifest from the fourth day after operation), and infection. Retention of the placenta was observed in 27 of 40 (60%) idiopathic cases, nonrelaxation of the cervix in 19 of 25 (76%) cases of uterine torsion and in 21 of 86 (25%) cases of dystocia due to oversized fetus.

Retention of the placenta could neither be prevented nor relieved by repeated injections of stilbestrol (100-200 Gm.). The involution of the

uterus as a rule was deficient as compared with normal parturition and could not be improved by injections of stilbestrol or posterior pituitary extract. The closing of the os uteri was delayed by this treatment.

The polybacterial infections of the uterus could neither be prevented nor alleviated with sulfonamides or penicillin and streptomycin combined. Good results were achieved in 7 cases with intrauterine terramycin® treatment (0.5 Gm. daily for 2 or 3 days).—[E. de Sutter: *Puerperal Disturbances After Cesarean. Vlaams Diergenesesk. Tijdschr.*, (Nov. 11, 1954).]—L.V.E.

Insecticides in Agriculture

Increasing use of organic phosphorus insecticides, several of which act as chemotherapeutic agents, open new ways toward protecting crops and cattle against noxious insects without undue interference with useful insects such as bees and hyperparasites. Marked progress has been achieved in synthesizing insecticides highly effective against certain insects, but less toxic to man and mammals than parathion.

Much, however, remains to be done toward development of an effective treatment of acute poisoning by organic phosphorus compounds or other anticholinesterases.—[J. Dufrenoy: *Techniques of Use of Insecticides in Agriculture. Rev. Path. Gén. et Comp.*, 55, (1955): 1155-1165.]—J.P.S.

Nutritional Diseases in Sheep

Research on certain phenomena of ovine diseases due to improper nutrition indicates that sheep become used to the pasture on which they live to such a degree that any change of grazing conditions has important repercussions which may render virulent the numerous bacteria which are normally present, innocuously, in the different organs. A good example of this fact is the disease called "enterotoxemia."—[Fontanelli: *Interferenze fra turbe nutritive e fatti infettivi propriamente detti nella patologia degli ovari. Zootrofia*, 4, (April, 1955): 232-235.]—ANTHONY SUNARA.

Oops, Sorry! Science Revived in U.S.S.R.

Professor G. M. Boshyan was, until recently, the director of one of the top laboratories for research in veterinary bacteriology in the Soviet Union—the Department of Biochemistry and Microbiology of the All-Union Institute of Experimental Veterinary Medicine. In 1949, he published a book, "On the Nature of Viruses and Microbes" (Abstr. in *J.A.V.M.A.*, 122, 1953: 327). This was hailed in the Soviet Union as a world-shaking contribution to the theory and practice of immunology. The book was reprinted to reach a total of 125,000 copies.

Professor Boshyan claimed that he could change

viruses to bacterial forms by special culture methods; that he could crystallize viruses of animal diseases; and that he could culture bacteria from killed vaccines, diagnostic antigens, and anti-serums. He never published his methods.

His claims were absurd and based largely on calculated contamination of cultures but, because of his influential position and because his theories were extensions of the Lysenko doctrine in genetics, he was able to get his ideas on immunization accepted officially. His vaccines for hog cholera and equine infectious anemia were living "bacterial forms" which he claimed to have cultured from the viruses. The Soviet government encouraged the use of these products on a wide scale. By 1951, it was clear that they were highly virulent. For example, his hog cholera vaccine was injected in 3,314 swine on one government farm, with the result that 2,777 contracted hog cholera.

Criticism of Lysenko's genetics began to appear in the Soviet scientific press in the summer of 1952. On March 5, 1953, Stalin died. In the summer of 1953, Lysenko was sharply attacked in the *Soviet Botanical Journal*. In December, 1953, the Ministry of Agriculture appointed a commission to investigate Boshyan's claims. While the commission was deliberating, Lysenko's genetic theories were officially discarded. On March 30, 1955, the commission reported that it had not been able to reproduce any of Boshyan's results, and announced the disastrous consequences of the field use of his vaccines. The Scientific and Technical Council of the Ministry of Agriculture discussed the report and heard speeches by Boshyan and his superior, Leonov. The Council then adopted a resolution approving the report of the commission and recommending that ". . . the Ministry take measures to improve the leadership of the Institute and the Department of Biochemistry and Microbiology."—[Y. R. Kovalenko: *On the Results of the Commission's Tests of the Methods Proposed by G. M. Boshyan*. *Veterinariya*, 32, (June, 1955): 6-15, 84-86.]—R.E.H.

BOOKS AND REPORTS

American Foundations and Their Fields

This text, compiled for the benefit not only of those who wish to give to philanthropic foundations but also to those who seek to receive, presents data on the purpose, fields of interest, finances, and officers of 4,162 of the probably 7,300 foundations in this country. The fourth edition in 1939 included 243 foundations, the sixth edition in 1949 included 899.

Of the 4,162 philanthropic foundations included, 269 are interested directly in health and medicine. Of the \$4.7 billion held as assets by all foundations, 32 per cent is held by seven foundations. The largest are the Ford Foundation with \$493 million

and the Rockefeller Foundation with \$449 million. —[*American Foundations and Their Fields*. By Wilmer Shields Rich. 732 pages. *American Foundations Information Service*, 860 Broadway, New York 3, N. Y. 1955. Price \$28.]

Ionography, Electrophoresis in Stabilized Mediums

This book is a summary of present knowledge regarding electromigration in stabilized mediums, with major emphasis on paper-stabilized electrolytes. It has a chapter on enzymes, hormones, and vitamins.—[*Ionography, Electrophoresis in Stabilized Media*. By Hugh J. McDonald, Robert J. Lappe, Edward P. Marback, Robert H. Spitzer, and Matthew C. Urban. *The Yearbook Publishers, Inc.*, 200 E. Illinois St., Chicago, Ill. 1955. Price \$6.50.]—W. A. AITKEN.

Cattle Fertility and Sterility

The publisher of this text states that "This is a pioneering work on all that is now known in the field of cattle breeding."

While this is a pretty broad recommendation, one finds little room for disagreement. This is especially true in view of the author's mature position and exacting fundamental preparation in the field of genital physiology. Added to this is a wealth of first-hand and intimate acquaintance with field problems related to dairy cattle. The breadth and depth of the author's experience enables him to fit theory into practice and to evaluate clinical reports in regard to the use of therapeutic measures.

In his foreword, the author calls attention to the delays that are experienced through lack of accurate means of assay, and to the cumulative benefits accruing from artificial insemination, including the control of genital diseases. His approach is that of the animal husbandman and physiologist. The text opens the door for new fields of research and practices which point toward more careful thinking on the part of the clinician, improved methods of husbandry, and more accurate techniques in the investigation of problems related to reproduction in cattle.

In summary and conclusion, the author states, "Education is a continuous problem, and permanent advances in this field are, as always, slow in showing good results. With ever increasing cooperation of the scientist, the veterinarian and the farmer which has been apparent in recent years, there is much hope that greater strides will be made in the solving of problems involved in reproduction."—[*Cattle Fertility and Sterility*. By S. A. Asdell. 215 pages. *Illustrated*. *Little, Brown & Co.*, Boston 6, Mass. 1955. Price \$5.50.]—H. E. KINGMAN, SR.

ORGANIZATION SECTION

Preliminary Information About 1956 AVMA Convention Location—San Antonio, Texas Dates—October 15-18, 1956

Postconvention Tour to Mexico

For the information of those who are accustomed to hearing about the next AVMA convention at this time of year, it is desirable to publicize the fact that the 1956 meeting will not be held until October. An October session was agreed on when the invitation to meet in San Antonio was accepted by the House of Representatives; the specific dates were set by the Executive Board.

Consequently, the series of articles about the plans, program, and features of the next convention, which usually begins in the January JOURNAL will not start this year until March.

San Antonio is one of the most colorful and historical sites for the convention that the Association

has ever selected. It will offer an opportunity for a side trip to the far-famed King Ranch, home of the Santa Gertrudis breed of cattle, and a postconvention tour to Mexico where an invitation has been received to hold an adjourned session at the fine new veterinary school in University City, just outside Mexico City.

Information about the San Antonio convention, hotel reservations, and the tour will be published from month to month beginning in March. Members will also receive details about the tour by direct mail from Happiness Tours which has been selected to handle travel arrangements.

Plan now to be in San Antonio in October.

Motion Picture Films Available from AVMA Film Library

Approved by the AVMA Special Committee on Motion Pictures

(The first list of motion picture films available from the AVMA Film Library appeared in the April, 1955, JOURNAL, pp. 325-332.)

Arrangements for showing a film should not be completed until a confirmation of booking notice is received. Book your films as far in advance as possible to avoid last-minute delay. AVMA films are available for use only within the continental limits of the United States; and the showing should be limited to one time unless special arrangements are made through the AVMA Film Library.

Address all inquiries to:

Film Library
American Veterinary Medical Association
600 S. Michigan Ave.,
Chicago 5, Ill.

Administration of Medicines to Sheep

16 mm.	Color; Running time	Produced by Dr. J. G. Whitlock, Cornell University, Ithaca, N. Y.	Rental \$2.00
Silent	23 min.		

This film illustrates special equipment designed to administer medicine to sheep. The dosage employed and technique of administering phenothiazine to a band of approximately 50 sheep is shown.

Dosage of copper sulfate and nicotine is also shown, together with special equipment employed with this type of medication.

The method of restraint shown in the film will not appeal to western veterinarians; however, it appears to be suitable for small farm flocks.

This film is recommended for veterinary audiences.

Epidemic Foot-and-Mouth Disease—Saskatchewan

16 mm.	Color; Running time	Produced by National Film Board of Canada	Rental \$2.50
Sound	16 min.		

This film reports on how the 1952 outbreak of foot-and-mouth disease in Saskatchewan was brought under control. It describes how the disease affects cloven-hoofed animals, then

shows the destruction and burial of all infected or exposed animals and the imposition of strict quarantine measures to prevent any escape of the highly contagious virus beyond the buffer zone. The meticulous disinfection of farms, vehicles, and all potential carriers is described. Finally, before the quarantine was lifted, it shows how test animals were employed to indicate the absence of the contagion.

This film serves as an excellent medium in describing and illustrating how a recent foot-and-mouth disease outbreak was quickly and successfully eradicated. It is an excellent review of this subject.

It is recommended for showing to veterinary students, veterinarians, and lay audiences.

Foot-and-Mouth Disease in South Africa

16 mm.	Color; Running time	Produced by Film Services, Union Education Dept., & Vet. Res. Inst., Onderstepoort, Union of South Africa	Rental
Sound	15 min.		\$1.00

This film briefly describes the disease in South Africa and the methods used there in handling the disease. There are some very good close-ups of lesions of the mouth and feet and the resultant symptoms. The problems of the disease in wild animals is discussed. It is a good film, showing the pathological changes in the affected animals.

The film is recommended for showing to professional and lay audiences.

Gastric Fistula Technique and the Interior of the Bovine Stomach

16 mm.	Color; Running time	Produced by Dr. A. F. Schalk and Associates, Ohio State University, Columbus	Rental
Sound	20 min.		\$2.00

This film depicts a method of preparing a gastric fistula in the bovine animal to be used for experimental work.

The film shows all of the steps required beginning with restraint, preparation of the animal, surgical technique, and postoperative care. Also shown are several types of plugs used to occlude the finished fistula.

The latter part of the film is devoted to a discussion of the normal rumen and its functions in the digestive process.

This film is recommended for professional audiences.

Identification Techniques

16 mm.	Black and white; Running time	Produced by Teleparagon, Pacific Grove, Calif., and John E. Craige, V.M.D., 1000 Scholer Ave., Seaside, Calif.	Rental
Sound	20 min.		\$2.50

This film depicts a method of identifying organisms believed to be the cause of dysentery in animals. The importance of obtaining an accurate history and the use of fecal smears is emphasized. The use of dark-field illumination is explained as are the rest of the techniques used by Dr. Craige in his microscopic examination of fecal samples.

The film is recommended for viewing by general practitioners and veterinary students. It is not cleared for television and can not be obtained through the AVMA film library for commercial purposes.

John's Disease

16 mm.	Color; Running time	Produced by Animal Disease Research Laboratory, U.S.D.A., Auburn, Ala.	Rental
Silent	12 min.		\$2.50

This film describes the symptoms and postmortem lesions of John's disease in cattle.

The technique of applying the intradermal test and the microscopic examination of intestinal mucosa to determine presence of causative organisms is shown.

The film deals briefly with means of transmission through ingestion of contaminable feed-stuffs, and a short review of methods of prevention and control of the disease is included.

It is recommended for professional and lay audiences.

Rinderpest

16 mm. Sound	Color; Running time 18 min.	Produced by U.S.D.A., Federal Civil Defense Administration, and Department of Defense	Rental \$2.50
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This film describes the history and shows the geographical distribution of rinderpest. It also shows the lesions and pathological changes of all organs and tissues affected.

It provides excellent visual information to veterinarians on this foreign disease, and emphasizes the need for accurate differential diagnosis due to similarity of lesions observed in several diseases of cattle presently observed in this country.

The measures used to prevent the introduction of rinderpest into this country are also outlined.

This film is of special interest to veterinarians and veterinary students. It is likewise recommended for showing to lay audiences.

Vicious Circle

16 mm. Sound	Color; Running time 21 min.	Produced by U.S.D.A., Washington, D. C.	Rental \$2.50
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This film describes an outbreak of tuberculosis in hogs, explaining that it is the avian type which comes from chickens and how the hogs contract the disease from chickens. The film also describes the symptoms of the disease, how it is spread, and how it can be prevented. It presents the National Poultry Improvement Plan, and advocates marketing birds after their first laying.

This film is recommended for professional and lay audiences.

Dr. W. O. Brinker Elected to Executive Board in District X

A special election was completed late in November in Executive Board District X (Michigan and Ohio) to fill out the term of Dr. Fred J. Kingma ending in 1959, a vacancy having been created when Dr. Kingma changed his residence from Ohio to Illinois.

Dr. Wade O. Brinker, East Lansing, Mich.,



Dr. Wade O. Brinker

was elected for the unexpired term. Dr. Brinker received his D.V.M. degree from Kansas State College in 1939. He was on the staff of the Department of Medicine and Surgery, School of Veterinary Medicine, Michigan State University, from 1939 to 1941 and then was on active duty with the Army Veterinary Corps for five years. Upon his return to the University in 1946, he was appointed assistant professor and later professor of veterinary medicine and surgery. In 1947, he received the M.S. degree.

Drs. J. K. Bone and H. W. Boothe of Chicago served as tellers on Dec. 2, 1955, and certified the results of the election.

Memorial Gifts Requested by Women's Auxiliary to Aid Veterinary Students

In 1955, the Women's Auxiliary to the AVMA established a Memorial Fund to augment the Student Loan Fund.

Gifts or gift legacies in memory of deceased veterinarians or their families may be given to this fund by friends and relatives. These gifts will further veterinary education and will constitute a lasting memorial to the deceased.

A special memorial card with the donor's name inscribed on it will be sent to the family. Donors will receive due acknowledgement of their gifts.

All checks should be made payable to the Women's Auxiliary treasurer, Mrs. John D. Stevens, P.O. Box 5, Sequim, Wash.

STUDENT CHAPTER ACTIVITIES

Pennsylvania Chapter Sponsors Joint meeting with Medical and Dental Students.—On Friday, October 21, the University of Pennsylvania Student Chapter of the AVMA sponsored a lecture by Captain William E. Mayer, M.C., U. S. Army, on "Neuropsychiatric Evaluation of Returned Prisoners of War."

The lecture was originally intended as a joint meeting of the student chapters of the veterinary, medical, and dental schools; however, the caliber of the speaker and the timeliness of the subject matter was such that the meeting was opened to the entire University of Pennsylvania student body and the public.

In order to get the students of the three schools into closer contact, a "coffee hour" was held immediately following the lecture, to which the faculties and students of the three schools were invited, and where the speaker, Captain Mayer, continued his subject on an informal basis. It is hoped this meeting will be continued as an annual affair, sponsored by each of the three schools in turn.

Captain Mayer, a physician and neuropsychiatrist, was on the examining team evaluating the returned prisoners of war in Korea. He spent two years of combat time in Korea as a psychiatrist with the Marine Corps, most of the time in forward areas. He explained, in detail, what the civilian soldier can expect if captured, how he will be treated, and how to act but, most important of all, he explained the educational and home background responsible for the defection of so many captured personnel in whole or in part. He has presented this material to all the major military commands, and at West Point, the Pentagon, and the Army Intelligence School. He has spoken to 40,000 military personnel and over 20,000 civilians at various meetings. He came to Philadelphia and spoke before five school boards, including the Philadelphia school board, and made two television appearances at which he mentioned the student chapter meeting. It is felt that a great deal was accomplished through this meeting and the choice of speaker.

s/CHARLES H. GARVIN, President.

WOMEN'S AUXILIARY

Why Raise Auxiliary Dues?—Last year I was a member of Mrs. Evans' committee; that committee studied our dues problem and then recommended to the house of delegates a raise in dues to \$2 a year. The last day of our convention, I heard a few unfavorable comments on the raise and became a little apprehensive about our membership. As the months have gone by I find I worried needlessly. In the reports received from several state auxiliary

meetings, the raise in dues has been accepted as long overdue and more women than ever before are joining both their state and our Women's Auxiliary to the AVMA.

We are now a large organization with a membership of over 4,300. Our potential in carrying out the purpose of the Auxiliary is expanding right along. The scope of the assistance we can give our husbands' profession is broadening each year. With the increase in membership and funds, there are few limits to what we can accomplish.

During the past year, it was my privilege to work closely with our national officers. I was amazed at the time and effort each put forth. Mrs. Moe was administrating the loan and award funds; Mrs. Coombs was tying together the work of 16 student auxiliaries and issuing six news letters to the girls; Mrs. Woelffer was planning for the Minneapolis meeting; Mrs. Atkins was editing a 16-page *Auxiliary News*; Mrs. Rodgers was working several hours each day as membership secretary, and Mrs. Richardson, as president, was co-ordinating the work of all the officers and directing the activities of the Auxiliary. This year, the same work goes on with different women doing some of the jobs. In less than two months as president, Mrs. Moore had sent out 200 letters and Mrs. Rodgers sends over 1,000 pieces of mail from her office each month. Directing the activities of our Women's Auxiliary to the AVMA is a big job and our officers are doing a wonderful piece of work. We are all very proud of them and want to back their efforts in every way.

It has been in the thinking of our leaders these last years that we are about ready for a full-time secretary and perhaps a permanent office of our own. With the wholehearted support of our membership for the raise in dues and each one of us getting at least one new member this year that dream may soon be a reality.

Where for \$2 can you get more help for your husband's profession and closer bonds of friendship with like-minded women than in Auxiliary membership? It's a real bargain!

s/(MRS. R. A.) ALICE MERRILL.

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Florida Auxiliary.—The Women's Auxiliary to the Florida State Veterinary Medical Association, held its eighth annual meeting at the Mayflower Hotel in Jacksonville on Oct. 18, 1955, with Mrs. John Wells, president, presiding.

Newly elected officers for the coming year are Mrs. M. W. Emmel, Gainesville, president; Mrs. R. E. Jackson, St. Augustine, first vice-president; Mrs. Charles Davis, second vice-president; Mrs. Paul Myers, Winter Haven, secretary; Mrs. P. S. Roy, Jacksonville, treasurer; and Mrs. T. P. Culpepper, Marianna, member-at-large.



New officers of the Women's Auxiliary to the Florida V.M.A. are (left to right) Mrs. M. W. Emmel, president; Mrs. R. F. Jackson, first vice-president; Mrs. Paul Myers, secretary; and Mrs. P. S. Roy, treasurer.

Projects planned for 1954-1955 are: \$20 to be sent to each of the veterinary libraries at Alabama Polytechnic Institute and the University of Georgia, to be used for books to be awarded to the library in honor of the freshman student who makes the highest scholastic average during his first year in the school of veterinary medicine; \$30 to be given to the

Memorial Fund of the Women's Auxiliary to the AVMA in memory of Dr. J. V. Knapp, state veterinarian; a \$10 contribution to the AVMA Research Fund; and publication of a new yearbook to include new officers, by-laws, and directory.

Mrs. C. M. Rodgers of Blandinsville, Ill., membership secretary of the AVMA Auxiliary, was present and through her guidance a program to increase membership was planned.

S/MRS. PAUL MYERS, Secretary.

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West Virginia Auxiliary.—The Women's Auxiliary to the West Virginia Veterinary Medical Association held its annual business meeting at the West Virginian Hotel in Bluefield on Oct. 10, 1955, with Mrs. Isaac Maxwell of Lost Creek presiding. During the business session, members voted a contribution to the Student Loan Fund and to the Research Fund.

The following officers were elected to serve for 1955-1956; Mrs. J. B. Kincaid, Parkersburg, president; Mrs. C. Frank Hale, Beckley, vice-president; and Mrs. James Mann, Jr., Lewisburg, secretary-treasurer. Mrs. V. H. Miller, Charleston, was appointed to serve as a delegate to the national convention at San Antonio, Texas, in 1956. Mrs. Miller gave a very infor-



The receiving line at the reception and tea given by the Governor's wife, Mrs. George M. Leader, for the Women's Auxiliary to the Pennsylvania Veterinary Medical Association at the Executive Mansion in Harrisburg on October 13. Mrs. Leader (second from left) shakes hands with Mrs. Dean Snyder of Annville, chairman of the women's local committee on arrangements for the meeting. Others in the picture are (left to right) Mrs. Earl N. Moore, president, AVMA Women's Auxiliary, Wooster, Ohio (third from left); Mrs. S. F. Scheidy, president of the Women's Auxiliary to the Pennsylvania V.M.A., and Mrs. Wm. Henning, wife of Dr. Wm. Henning, Secretary of Agriculture of Pennsylvania.

mative report on the Minneapolis convention. Following the business meeting, 19 members and two guests enjoyed a luncheon at the West Virginian Hotel. Mrs. Elizabeth DeBrich of Bluefield gave an interesting talk and demon-

stration on flower arranging. The members also attended a football game at Mitchell Stadium on Saturday.

s/MRS. JAMES MANN, *Secretary.*

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During the annual business meeting of the Women's Auxiliary to the Pennsylvania State Veterinary Medical Association, held in Harrisburg on Oct. 12-13, 1955, Mrs. B. Zackon (left), secretary, confers with Mrs. Earl N. Moore, Mrs. Sam Scheidy, and Mrs. J. Eagleman.



APPLICATIONS

Applicants—Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative Bylaws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent association shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative Bylaws.

BENEDICTSON, BARNEY D.

3402 Summitview Ave., Yakima, Wash.
D.V.M., Washington State College, 1946.

DONNER, GERALD R.

102 Montgomery St., Highland Park, N. J.
D.V.M., Middlesex University, 1947 and Alfort National Veterinary School, 1952.

FABBRETTI, JOSEPH C.

Mendon St., Bellingham, Mass.
D.V.M., Middlesex University, 1944.

FISHMAN, ARTHUR

R.F.D. 2, Box 464, Alexandria, Va.
D.V.M., Middlesex University, 1945.

GAAFAR, SAYED M.

Department of Veterinary Parasitology, Texas A. & M. College, College Station, Texas.
D.V.M., Texas A. & M. College, 1955.

GLASSER, JASHA L.

47-20 42nd St., Sunnyside, N. Y.
D.V.M., Middlesex University, 1945.

HERBERT, NORMAN

3506 Jo Ann Drive, Baltimore, Md.
D.V.M., Middlesex University, 1945, and Alfort National Veterinary School, 1951.

JACKEL, LEONARD

7A Old Hickory Drive, Albany, N. Y.
D.V.M., Middlesex University, 1946 and Alfort National Veterinary School, 1952.

JARAS, FRANK

R.R. 3, Michigan City, Ind.
D.V.M., Veterinary College of Hannover, Germany, 1949.

KARASOFF, JULIAN M.

Department of Public Health, Food and Drug Division, Boston, Mass.
D.V.M., Middlesex University, 1942.

JONES, CARL H.

P.O. Box 286, Athens, Ala.
D.V.M., Alabama Polytechnic Institute, 1939.

KEEVAK, SHELDON Z.

936 N. Pennsylvania Ave., Mason City, Iowa.
D.V.M., Middlesex University, 1947.

LOWE, ROBERT W.

3401 Nashville, El Paso, Texas.
D.V.M., Texas A. & M. College, 1949.

MEYERS, WALTER

195 Keer Ave., Newark, N. J.
D.V.M., University of the Philippines, 1953.

MYCHAJLUK, ZENON M.

726 Railway St., Enderlin, N. D.
D.V.M., Veterinary College, Brno, Czechoslovakia, 1938.

RACHWAL, G.

Box 569, Dunnville, Ont.
D.V.M., Veterinary Academy, Lemberg, Poland, 1934.

SEIUMS, OSKARS

Rugby, N. Dak.
D.V.M., University of Latvia, 1943.

ORGANIZATION SECTION

SVARCAS, PAUL
211 E. Main St., Mascouah, Ill.
D.V.M., Veterinary College of Hannover, Germany,
1946.

VITUMS, ARTURS
College of Veterinary Medicine, State College of Washington,
Pullman, Wash.
D.V.M., University of Latvia, 1930.

Applicants—Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative Bylaws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

Second Listing

DAUGHTREY, FRANKLIN D., 311 S. Gilbert Ave., LaGrange, Ill.

MALONE, GEORGE P., Porcupine, S. Dak.

SANDSTEDT, HARALD G., Kyrkogar 9, Mjölby, Sweden.

Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative Bylaws to members in good standing of student chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

First Listing

University of Georgia*

TAFF, CLYDE W., D.V.M.
Box 389, Rt. 2, Buena Vista Rd., Columbus, Ga.
Vouchers: J. D. Edens and H. N. Mead.

Texas A. & M. College

LACOUR, RAY M., D.V.M.,
Box 21, Abbeville, La.
Vouchers: W. E. Noel and H. N. Mead.

Second Listing

Michigan State University

ANDERSON, JAMES H., D.V.M., Box 27A, Donnellson, Iowa.
FAY, GORDON K., D.V.M., 1123 Lapeer Ave., Port Huron, Mich.

University of Montreal

JOHANSSON, ARNE B., D.V.M., 15 Martin Rd., St. Hubert, Que.

University of Toronto

MCLEAN, WILLIAM J., D.V.M., 6 Sophia St., E., Barrie, Ont.

Texas A. & M. College

DANCER, EARL W., JR., D.V.M., P. O. Box 565, Columbus, Texas.

Tuskegee Institute

WILLIAMS, LAWRENCE B., D.V.M., 639 Carroll Ave., St. Paul, Minn.

THE NEWS

Examination for Veterinary Officers, Public Health Service

A competitive examination for appointment of veterinary officers to the Regular Corps of the United States Public Health Service will be held in various places on Feb. 28, 29, and March 1, 1956.

Appointments which provide opportunities for career service in the field of veterinary medicine, research, and public health, will be made in the ranks of assistant and senior assistant, equivalent to Navy ranks of lieutenant (j.g.) and lieutenant.

Entrance pay for those with dependents is: assistant veterinarian, \$6,017 per year; senior assistant veterinarian, \$6,918. Qualified officers are promoted at regular intervals.

Active duty as a public health service officer fulfills the obligations of Selective Service.

The requirements are: U. S. citizenship; age 21 years; graduation from a recognized school of veterinary medicine; and collegiate and professional training and appropriate experience totaling at least seven years for assistant veterinarian and at least ten years for senior assistant veterinarian.

Entrance examinations include an oral interview, physical examination, and comprehensive objective examinations in the professional field.

Application forms may be obtained from: Chief, Division of Personnel, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C. Completed application forms must be received in the Division of Personnel no later than Feb. 3, 1956.

Midwest Small Animal Association and Regional Meeting of A.A.H.A.

The eighteenth annual meeting of the Midwest Small Animal Association and regional meeting of the American Animal Hospital Association were held in the Hotel Burlington in Burlington, Iowa, on Nov. 9-10, 1955. There were 133 veterinarians from 15 states in attendance at this joint session.

The program listed the following speakers and their subjects: Drs. William F. Irwin, Tulsa, Okla. (professional service, 1955-1956); O. B. Morgan, Minneapolis, Minn. (forty years of small animal medicine); C. L. McGinnis, Peoria, Ill. (economics of small animal practice); Edward C. Saunders, Elgin, Ill. (fee survey in Chicago area); Russell A. Leeper, Des Moines, Iowa (the problem of building); Wayne H. Riser, Skokie, Ill.; Russell A. Leeper, Des Moines, Iowa, O. Norling-Christensen, Wilmette, Ill., Bennett J. Porter, Minneapolis, Minn., and Paul T. White, Indianapolis, Ind. (panel on building materials); V. G. Crago, Youngstown, Ohio (gadgets); Robert C. Gonser, Canton, Ohio (skin diseases of dogs); Morgan K. Jarvis, Omaha, Neb. (feline practice); Julius J. Fishler, Elkhart, Ind. (feed-

ing the cat); Francis A. Spurrell, Minneapolis, Minn. (radiographs of the thorax and abdomen); Robert J. Cyrog, Skokie, Ill. (otitis externa); C. P. Zepp, Sr., New York, N. Y. (surgery for otitis externa); George W. Mather, Minneapolis, Minn. (common eye diseases); Hugh D. Simpson, Ames, Iowa (prosthesis of the eye); and a panel on radiographs for diagnosis which included Drs. George W. Mather, Julius J. Fishler, Hugh D. Simpson, and Francis A. Spurrell.

The following officers were elected to serve the Midwest Association in 1956: Drs. R. B. Koger, Joplin, Mo., president; Darrel S. Steele, Minneapolis, Minn., vice-president; and J. Porter Coble, Springfield, Ill., reelected secretary-treasurer. Retiring president Dr. C. Edwin Hofman of Tulsa, Okla., was elected a trustee for two years replacing Dr. Irvin P. Irwin of Iowa City.

S/GRANT B. MUNGER, *Chairman,
Membership Committee.*

Symposium on Medicated Animal Feeds

The Food and Drug Administration will sponsor a symposium on medicated animal feeds on Jan. 23-24, 1956, in conjunction with feed manufacturers and basic drug manufacturers. The meeting will be held in the auditorium of the Department of Health, Education, and Welfare at Fourth and Independence Ave., Washington, D. C.

Conference on Calcium and Phosphorus Metabolism in Man and Animals

A conference on "Calcium and Phosphorus Metabolism in Man and Animals with Special Reference to Pregnancy and Lactation" will be held in New York City on Jan. 10-11, 1956. Topics covered will include: Problems of Parturient

Paresis in Dairy Cows; Calcium Balance and Turnover Studies; Parathyroid Hormone Problems; and Special Aspects of Calcium Metabolism.

Dr. C. McLean, University of Chicago, is general chairman. Among the 30 participants are: Drs. H. H. Dukes, Cornell University, and William Pounden of the Ohio Agricultural Experiment Station.

Further information can be obtained from Dr. R. R. Marshak, of Springfield, Vt.

WHO News Letter Devoted to the Zoonoses

The November-December, 1955, newsletter of the World Health Organization discussed the important animal diseases transmissible to man. Contributors included Sir Thomas Dalling, veterinarian of the Food and Agriculture Organization; Dr. James H. Steele, chief, Veterinary Public Health Service, U.S.A.; Dr. Martin M. Kaplan, chief veterinary public health officer, WHO; Dr. H. Thornton, chief, veterinary inspection, England; and Dr. K. F. Meyer, director, the George William Hooper Foundation, San Francisco, Calif.

Omega Tau Sigma Convention at Auburn

The Zeta Chapter of Omega Tau Sigma at Alabama Polytechnic Institute, Auburn, was host to the fraternity's national convention Oct. 28-30, 1955. There were delegates from chapters at Ohio State University, Georgia, Pennsylvania, Cornell universities, and the University of Toronto in Canada.

After the annual business meeting, members attended a banquet at which Dr. Walter J. Gibbons, of Auburn, was the evening's principal speaker. His talk was a historical review

The official delegates to the National Convention of Omega Tau Sigma.



of the veterinary profession and its evolution into the modern science that it is today.

Presiding over the convention were the officers of the Grand Council: Drs. D. C. MacKay, Canada, president; T. C. Fitzgerald, Auburn, vice-president; Jack R. Palmer, University of Georgia, secretary; E. Sunderville, Cornell University, treasurer; and Robert Vesper, Ohio State University, historian.

AMONG THE STATES AND PROVINCES

Colorado

Denver Society Has "Perfect" Telephone Listing.—The Denver Veterinary Medical Society proudly boasts a "perfect telephone listing" again this year. No veterinarian's name is more prominently displayed than any other—a fact that is difficult to achieve in view of the large veterinary population of that area. Veterinary practitioners of the Denver area have increased so rapidly in the past few years that it is reported that it now has one of the highest concentrations of veterinarians per capita in the western United States.

s/G. H. GILBERT, *State Secretary.*

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Personal.—Dr. N. J. Miller, Eaton, recently suffered severe chest injuries when a large steer broke over the top of a fence and landed on his face and chest. Although on the critical list for some time, Dr. Miller is reported well on the way to recovery.

s/G. H. GILBERT, *State Secretary.*

Connecticut

State Association.—The regular quarterly meeting of the Connecticut Veterinary Medical Association was held in the Hotel Bond, Hartford, on Nov. 2, 1955.

A novel "question program" was expertly headed by Dr. A. H. Craige, Jr., of Pitman-Moore Co., Indianapolis, Ind., and Dr. Frank Bloom of Flushing, Long Island, N. Y. Some 22 questions pertinent to important conditions in the field of large and small animal practice made a most interesting and challenging program.

s/E. H. PATCHEN, *Secretary.*

Georgia

Eastern and Southern Associations.—A combined meeting of the East and South Georgia Veterinary Medical Associations was held in Douglas on Nov. 6, 1955. Rabies committees from each of the local associations and from the state Association had met the previous evening at the home of Dr. Guy Moorman and plans had been drawn for a proposed rabies bill. This bill was discussed by Drs. C. C. Von Gremp and J. W. Mann who constitute the rabies committee for the state Association.

A motion was made and passed recommending that the State Rabies Committee take up the bill with Dr. Sellers, head of the State Health Department, and report back to the business meeting of the state Association in Macon in December.

Dr. Mann informed the meeting of a special appropriation of \$60,000 that had been granted by the Governor for eradication of tuberculosis of cattle, scrapie of sheep, and brucellosis of swine on a 60-20-20 per cent basis.

A panel composed of Drs. Tom O'Connor, Soperton, Bob Meeks, Athens, and Dr. C. C. Von Gremp, Decatur, discussed questions concerning rhinitis of swine, transit lameness in pigs, swine erysipelas, bovine pneumonias, and other topics. The joint meeting was followed by business sessions of the local associations.

The South Georgia V.M.A. elected the following men to office for the coming year: Drs. Quincy Derbyshire, Moultrie, president; Sam Frazier, Cairo, vice-president; and Wm. L. Sippel, Tifton, secretary-treasurer.

Everyone enjoyed a delicious barbecued chicken dinner, arranged by the local committee, in the private dining room of the General Coffee Hotel.

s/WM. L. SIPPEL, *Secretary.*

Indiana

Indiana V.M.A.—The seventy-second annual convention of the Indiana V.M.A. will be held at the Sevierin Hotel, Indianapolis, on January 11 and 13.

Out-of-state speakers will include Drs. C. L. Blakely (Mass.), L. E. Fisher (Ill.), R. L. Ott (Wash.), Lester Proctor (Iowa), E. F. Ebert (Mo.), H. E. Kingman (Ill.), and R. L. Baker (Ohio).

The program will feature a panel on Practical "Methods for Handling Management and Practice Problems" on Wednesday afternoon, and presentations on "Canine Surgery" by C. Lawrence Blakely and "Small Animal Geriatrics" by R. L. Ott on Wednesday evening. Papers dealing with large animal subjects will be given Thursday and Friday.

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Michiana Association.—On Nov. 3, 1955, the Michiana Veterinary Medical Association met in South Bend to hear Dr. M. J. Jarvis of the Corn States Laboratories speak on diseases of the cat.

The women's program included demonstrations of wrapping Christmas packages.

s/J. L. KIXMILLER, *Resident Secretary.*

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Northwestern Association.—The October 27 meeting of the Northwestern Indiana Veterinary Medical Association was held in Monticello. The guest speaker was Judge Larry Ross of Monticello who spoke on merits and morals, regardless of an individual's religious standing. A resolution was adopted to discourage the

Indiana V.M.A. from allowing commercial firms selling direct to the laity to exhibit at the annual meetings.

Dr. and Mrs. C. Lindborg, Monticello, were hosts.

s/J. L. KIXMILLER, Resident Secretary.

• • •

Ninth District Association.—The Ninth District (Ind.) Veterinary Medical Association met in Seymour on October 21. Dr. R. V. Johnston, of Pitman-Moore Co., spoke on leptospirosis and showed some interesting slides of various tests.

Dr. W. A. Brown of Seymour was host.

s/J. L. KIXMILLER, Resident Secretary.

Iowa

Interstate Association.—The forty-first annual meeting of the Interstate Veterinary Medical Association was held Nov. 1-2, 1955, in the Martin Hotel in Sioux City, with 217 veterinarians registering.

The following program was presented: Drs. F. H. Oberst, Kansas State College, Manhattan (reproduction problems); B. W. Kingrey, Iowa State College, Ames (traumatic gastritis); L. E. Hanson, University of Minnesota, St. Paul (swine nutrition); W. J. Kilpatrick, Mediapolis (practice economics); D. F. Walker, Broken Bow, Neb. (urinary calculi and other conditions of the bovine penis); Robert Getty, Iowa State College, Ames (bread and butter anatomy); George A. Young, University of Nebraska, Lincoln (effects of viruses on embryonic and fetal development); Arthur A. Case, University of Missouri, Columbia (in toxicants in farm animals); Deets Pickett, Kansas City, Mo. (small animal surgery); Lynn A. Griner, Colorado A. & M. College, Fort Collins (Clostridium organisms); and the following panel on general practice—Drs. J. M. Aiken, South Sioux City, Neb., moderator; W. J. Kilpatrick, Mediapolis, Iowa; M. C. Kromminga, Centerville, S. Dak.; T. R. Weatherly, Oakland, Neb.; and D. F. Walker, Broken Bow, Neb.

s/K. W. SMITH, Secretary.

Kansas

Central District Association.—The fall quarterly meeting of the Central District Veterinary Medical Association was held at the Hotel Lassen in Wichita on September 11. The speakers were: Drs. Louis H. Smith, Topeka (state brucellosis program); and Glen L. Dunlap of Ashe Lockhart, Kansas City (swine erysipelas). The activities concluded with a smorgasbord.

s/K. M. CURTS, Resident Secretary.

• • •

Sedgwick County Association.—On September 22, members of the Sedgwick County Veterinary Medical Association met at the Stock-

yards Hotel in Wichita for a social hour and steak dinner.

s/K. M. CURTS, Resident Secretary.

• • •

Western District.—Some 20 members of the Western District Veterinary Medical Association met on September 23, in the new hospital of Drs. W. E. Ripple and E. A. Liebl of Dodge City, to hear Dr. L. H. Smith discuss the status of the brucellosis control program. The hosts served coffee and doughnuts at the close of the scientific session.

s/K. M. CURTS, Resident Secretary.

• • •

Southeast District.—Members of the Southeast District Veterinary Medical Association held a special meeting in Parsons on September 24. After a dinner at the Parsons Hotel, Dr. L. H. Smith spoke on the brucellosis control program.

s/K. M. CURTS, Resident Secretary.

• • •

Northeast District.—The fall meeting of the Northeast District Veterinary Medical Association was held at the Atchison Hotel in Atchison on September 25. Dr. L. H. Smith discussed the brucellosis control program at the scientific session.

s/K. M. CURTS, Resident Secretary.

Massachusetts

State Association.—The regular monthly meeting of the Massachusetts Veterinary Association was held Nov. 16, 1955, at the Hotel Beaconsfield in Boston.

The guest speaker, Dr. Richard J. Coffey (M.D.), discussed plastic surgery.

s/C. LAWRENCE BLAKELY, Secretary.

Michigan

Southeastern Association.—The Southeastern Michigan Veterinary Medical Association met at the Croatian Center near Detroit on Nov. 30, 1955. The guest speaker, Dr. B. J. McSherry of Ontario Veterinary College, discussed clinical pathology and practical clinical tests that can be run as office procedure.

The annual holiday party was held December 28. Members of the Association and their wives enjoyed an evening of dancing and entertainment.

s/GILBERT MEYER, Secretary.

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Personal.—Dr. R. W. Newlin (MSC '42) has resigned from the farm veterinary service (ambulatory clinic) at Michigan State University to practice at Columbus, Ind. He has been replaced by Dr. D. J. Ellis (MSC '43).

Missouri

Greater St. Louis Association.—The November 4 meeting of the Greater St. Louis Veterinary Medical Association was held at the

Sheraton Hotel. Dr. J. D. Ray, White Hall, Ill., discussed immunization procedures.

The women enjoyed a demonstration of candle making.

s/ALLEN B. SHOPMAKER, *Secretary.*

Kansas City Association.—The regular monthly meeting of the Kansas City Veterinary Medical Association was held Nov. 15, 1955, in the Livestock Exchange Building. The program of clinical demonstrations and practice tips was presented by the Kansas City Small Animal Association, with Dr. J. E. Mosier of Kansas State College as the featured demonstrator.

s/BUSCH MEREDITH, *Secretary.*

New York

Short Course on Public Health.—A special, one-day short course on the veterinarian's relation to public health will be held Tuesday, Jan. 3, 1956, at the New York State Veterinary College in Ithaca. This is the day preceding the forty-eighth annual conference for veterinarians which will also be held at the College. The short course is sponsored by the College, the New York State Health Department, and the U. S. Public Health Service. Outstanding national speakers will appear on the program.

s/W. A. HAGAN, *Dean.*

North Carolina

State Association's Exhibit at Fair.—The accompanying photograph shows the exhibit sponsored by the North Carolina Veterinary Medical Association at the 1955 state fair. It depicts the various aspects of the services of the veterinary profession to the public. One panel was devoted to veterinary practice; another to animal disease control; a third to veterinary public health; and the fourth to education and research. The AVMA's educational exhibit panels formed the basis around which the other pictures and captions were integrated. Considerable interest was manifest by the public in the booth and attendant vet-

erinarians answered inquiries and supplied information booklets.

s/RALPH L. WILLIAMS, *President-Elect,*
North Carolina State V.M.A.

Oregon

State Association.—The annual meeting of the Oregon State Veterinary Medical Association was held at the Marion Hotel in Salem on Oct. 29, 1955.

The program included the following speakers and their subjects: Drs. Edward L. Holden, Oswego (antepubic urethrostomy in male cats); F. R. Mencimer, Ogden, Utah (helpful hints for the practitioner); C. H. Seagraves, Oregon City (feeding and management of sheep on the farm); and Dallen Jones, Roseburg, (salmon poisoning).

During the business session, the following officers were elected: Drs. Lavon M. Koger, Ontario, Ore., president; Kermit J. Peterson, Salem, president-elect; and Edward L. Holden, Oswego, secretary-treasurer. Drs. James L. Adams, Oregon City, Dallen H. Jones, Roseburg, and Ralph R. Younce, Hillsboro, were elected to the executive board. The following new members were admitted to the Association: Drs. John H. Schmidt, Merrill; LeRoy V. Gallagher, Tillamook; and Rolla C. Sexauer, Salem.

s/EDWARD L. HOLDEN, *Resident Secretary.*

Pennsylvania

Bucks-Montgomery Association.—On Nov. 9, 1955, members of the Bucks-Montgomery Veterinary Medical Association met at the Moose Home in Doylestown to hear Dr. Russell Fowler, bacteriologist of the Abington Memorial Hospital, discuss blood groups.

s/VINCENT W. RUTH, *Secretary.*

Quebec

Faculty Changes at Veterinary School.—The Ecole de Médecine Vétérinaire of the Province



The exhibit sponsored by the North Carolina Association at the 1955 state fair.

of Quebec announces the appointment of two full professors—Dr. Louis-P. Phaneuf (MON '51; M.S., COR '54) to teach physiology and experimental surgery, and Mr. G. A. Melancon (L.Sc., MON '46) to teach chemistry and physics.

Vermont

State Association.—The annual meeting of the Vermont Veterinary Medical Association was held in Woodstock on Nov. 9, 1955.

The featured speaker on the scientific program was Dr. Wilson Haubrich of Claremont.

During the business session, the following officers were elected: Drs. W. D. Bolton, South Burlington, president; J. E. Sawyer, Windsor, president-elect; W. S. Wakefield, Hardwick, vice-president; and A. E. Janawicz, Montpelier, secretary-treasurer. The following new members were admitted to the Association: Drs. Ansel R. Carnahan, Montpelier, was admitted to membership in the Association.

S/A. E. JANAWICZ, *Resident Secretary*.

Wisconsin

Northeastern Association.—Forty-five veterinarians from nine counties attended the eighteenth annual meeting of the Northeastern Wisconsin Veterinary Medical Association at the Elks Club in Appleton on October 19.

Dr. D. H. Doudna of Lena led a panel discussion on the quarantine of brucellosis-infected herds. Other panel members were Drs. H. J. O'Connell state veterinarian, Carl Hammerburg, New London, and Keith Downey, Green Bay. Other program speakers were Drs. William O'Rourke, Madison (public relations); Mr. Harold Adams, Appleton banker (investments); and Dr. O'Connell (progress of livestock sanitation).

At the business session, Dr. D. H. Doudna, Lena, was elected president; Dr. O. W. Meyer, Manitowoc, vice-president; Dr. William Madson, Appleton, secretary; and Dr. Harvey Trombley, Appleton, treasurer.

S/WILLIAM MADSON, *Secretary*.

FOREIGN NEWS

Africa

Artificial Insemination in Africa.—In spite of regional problems from trypanosomiasis, attempts are being continued in British West Africa to improve the milk yields of local zebu (Brahman) cattle by cross-breeding with "exotic" bulls. Although the butterfat production of local zebu breeds is 4 to 7 per cent, average milk yields are only 2,000 to 3,000 lb. per lactation, too low for economic production. In Nigeria, the British Friesian (Holstein) is the choice to improve local yields. Experiments in other parts of Africa have shown this breed

to be hardy and able to withstand fairly high temperatures, if managed under dairy conditions. Semen is flown from the United Kingdom every week, during the breeding season, to the veterinary department dairy on the Jos Plateau in Nigeria, and several promising first-cross heifers are now in calf. The Department of Agriculture is testing a Friesian bull by keeping him in a screened byre at the experimental dairy near Lagos in the "fly"-infested forest belt where all animals are given prophylactic treatment with antrycide. The bull already has several cross-bred calves. In general, the policy is to grade up with exotic blood, back-crossing to zebu bulls, where necessary, to maintain resistance to local diseases. It is interesting that French West African authorities claim best results for production of beef and milk from the first crosses—in this case, with Montbelliard and Charolais bulls.

S/DESMOND H. HILL,
Foreign Corresponding Secretary.

Brazil

Aftosa Conference.—The Sixth Aftosa Training Conference sponsored by the Pan American Sanitary Bureau, regional office of the World Health Organization, was held in Rio de Janeiro, Brazil, on Nov. 16-26, 1955. Participants were from countries in the southern part of South America.

Taiwan

Universities of California and Taiwan Cooperate in Teacher Exchange.—The University of California and National Taiwan University have signed a three-year agreement whereby they will exchange specialists and faculty members. To date, two U. C. agriculture specialists have gone to N.T.U. and one N.T.U. faculty member, Dr. S. S. Young, professor of veterinary medicine, is at the California School of Veterinary Medicine for four months, after which he will visit other veterinary schools in the states. Dr. Young, a graduate of Peking University in 1921, has been AVMA correspondent in Free China for several years following a visit to the states a few years ago.

S/S. S. YOUNG, *AVMA Correspondent*.

STATE BOARD EXAMINATIONS

Montana.—The Montana Board of Veterinary Medical Examiners will hold their next veterinary licensing examination on Jan. 23-25, 1956, at Bozeman. Completed applications must be returned to the Board at least ten days prior to the examination date. Application blanks may be obtained from the secretary, Dr. J. W. Safford, Veterinary Research Laboratory, Montana State College, Bozeman, Mont.

VETERINARY MILITARY SERVICE



Graduates of Oak Ridge Veterinary Radiological Health Course

First row (front, left to right)—Lt. Col. Willard R. Merchant, QM Market Center System, Chicago; Lt. Col. Bernard F. Trum (instructor), Oak Ridge Institute of Nuclear Studies; Lt. Col. Herbert F. Sibert, Fort Bliss, Texas; Lt. Col. Aaron F. Allison, QM Inspection Service Command, New York; Dr. Ralph T. Overman, director of training, Oak Ridge Institute of Nuclear Studies; Lt. Col. Wilson M. Osteen, Fort Monroe, Va.; Lt. Col. Thomas A. S. Hays, Veterinary Food Inspection Unit, Baltimore; and Lt. Col. Walter T. Carl (instructor), Oak Ridge Institute of Nuclear Studies.

Second row—Major John S. Bixby, U.S.A.F., Great Falls, Mont.; Major John H. Cady, U.S.A.F., Camp Pendleton, Calif.; Major Jay N. Thomas, U.S.A.F., MacDill A.F.B., Fla.; Major Charles F. Thumm, Jr., Hq., Third Army, Fort McPherson, Ga.; First Lt. Roger W. Baker, Veterinary Food Inspection Service, Chicago; Capt. James R. Prine, U.S.A.F., Hq., Wright Air Development Center, Wright-Patterson A.F.B., Ohio; Major Dan Hightower, A.M.S. Meat and Dairy Hygiene School, Chicago; Dr. A. M. Lee, U.S. Department of Agriculture, Washington, D.C.; and Major Garland R. Farmer, A.M.S. School, Fort Sam Houston, Texas.

Third row—Major Max M. Nold, U.S.A.F. (instructor), Oak Ridge Institute of Nuclear Studies; Major Robert B. Greiner, Fort McPherson, Ga.; Capt. DePaul J. Corkhill, U.S.A.F., Dover A.F.B., Del.; Capt. Erby L. Massie, U.S.A.F., Gunter A.F.B., Montgomery, Ala.; Capt. John D. Mosely, U.S.A.F., Walter Reed Army Institute of Research, Washington, D.C.; Major Benjamin D. Fremming, U.S.A.F., Balcones Research Center, University of Texas, Austin; Capt. Robert D. Henthorne, Walter Reed Army Institute of Research, Washington, D.C.; and Major U. S. Grant Kub., U.S.A.F. (instructor), Oak Ridge Institute of Nuclear Studies.

DEATHS

★**Carl Cozier** (CVC '05), 81, Bellingham, Wash., died Oct. 7, 1955. Dr. Cozier had practiced in Bellingham and Whatcom County for 50 years. Widely respected throughout the Northwest in his profession, Dr. Cozier served for 14 years as secretary-treasurer of the Washington State Veterinary Medical Association, and for many years served as city milk inspector for Bellingham. Dr. Cozier was also active in civic activities and a school in Bellingham has been named in his honor. He was a member of the AVMA for many years. Dr. Cozier is survived by his widow, a son, two daughters, and four grandchildren.

John L. Hoyleman (CVC '03), 83, Holdrege, Neb., died Sept. 28, 1955. Dr. Hoyleman had retired in 1950. He is survived by a son, a daughter, and four grandchildren.

★**Charles D. Stafford** (KSC '35), 47, Novato, Calif., died Oct. 18, 1955.

Dr. Stafford was born in San Antonio,

Texas, on Feb. 8, 1908, and graduated from Kansas State College in 1935. He attained the rank of lieutenant colonel in the Veterinary Corps, U. S. Army, during World War II and received the Bronze Star for service while attached to the Tenth Armored Division in France. Dr. Stafford was highly respected as an outstanding large animal practitioner and as a civic and public-spirited leader in his community. He is survived by his widow, Marie, and two children, Susannah Louise, 11, and Charles Michael, 13.

Dr. Stafford was a member of the AVMA, the California State and Redwood Empire Veterinary Medical Associations, and of several civic and fraternal organizations.

★**Fred H. Steele** (API '15), 62, Huntsville, Ala., died Sept. 27, 1955. Dr. Steele had practiced in Huntsville since 1924. He was a member of the Alabama Veterinary Medical Association and of the AVMA. He is survived by his widow and one son.

★ Indicates members of the AVMA.

**Chloromycetin in Treatment of Complications
Due to Secondary Invaders of Canine
Distemper and of Gastro-Enteritis**

Fred Gasow, D.V.M., and Edwin Oja, D.V.M.
Gasow Veterinary Hospital, Birmingham, Michigan.

Chloromycetin Therapy in Veterinary Medicine

J. W. EASTMAN, D.V.M.; A. S. SCHLINGMAN, D.V.M., M.S.;
MARY C. MANNING, B.S.; F. E. EADS, D.V.M., M.S.
Rochester and Detroit, Michigan

The use of chloromycetin in the treatment of disease caused by a variety of pathogens in many species of domestic animals opens a new field of antibiotic therapy. It is in this broad spectrum of activity, it is not only extremely active against gram-positive micro-organisms, but also against certain gram-negative micro-organisms, bacteria and viruses. Highly effective against kennel cough, bronchitis, croup, canine pneumonia, rickettsiae, rinderpest, and various other and intestinal infections. They also found

another required four days. An 800-lb. bull, suffering from recurring fever, was given 10 gm. of chloromycetin intravenously. In eighteen hours, the temperature had dropped six degrees to normal. All probably not necessary, the second injection was given at the time the second injection was given. Twenty-four hours later, recovery was complete.

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**The Clinical Use Of Chloromycetin
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by
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**The Clinical Use of Chloromycetin
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W. G. Magrane, D.V.M.
Mishawaka, Ind.

A. S. Schlingman, D.V.M., M.Sc., and Mary C. Manning, B.S.
Research Laboratories, Parke, Davis & Co., Detroit, Mich.

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Treatment of Kennel Cough**

James E. Cook, D.V.M.
Holland, Mich.

Infectious bronchitis.—Chloromycetin palmitate was used in the treatment of infectious bronchitis in 100 dogs of various ages and weights. The dogs were 8.5 to 15.5 lb. in body weight. All were artificially infected with a

Materials and Methods
Chloromycetin palmitate was used in the treatment of infectious bronchitis in 100 dogs of various ages and weights. The dogs were 8.5 to 15.5 lb. in body weight. All were artificially infected with a

**Blood Level Studies in Dogs
Following the Administration
of Chloromycetin**

F. E. EADS, D.V.M., M.S.; A. J. GLAZKO, Ph.D.; L. M. WOLF,
JOHN EHRLICH, Ph.D.; M. GALBRAITH, M.S.
Detroit, Michigan

COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

Pennsylvania, University of. Annual conference for veterinarians. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., Jan. 3-4, 1956. M. W. Allam, dean.

Cornell University. Annual conference for veterinarians. New York State Veterinary College, Cornell University, Ithaca, N. Y., Jan. 4-6, 1956. W. A. Hagan, dean.

Ohio State Veterinary Medical Association. Annual meeting. Deshler-Hilton Hotel, Columbus, Ohio, Jan. 4-6, 1956. Mr. R. L. Henry, 50 E. Broad St., Columbus 15, Ohio, secretary.

Oklahoma Veterinary Medical Association. Annual meeting. Hotel May, Tulsa, Okla., Jan. 8-10, 1956. C. H. Faucks, 3421 N.W. 20 St., Oklahoma City, Okla., secretary.

Indiana Veterinary Medical Association. Annual meeting. Hotel Sevierin, Indianapolis, Ind., Jan. 11-13, 1956. L. M. Borst, 3315 Shelby Ave., Indianapolis, Ind., secretary.

Wisconsin Veterinary Medical Association. Annual meeting. Schroeder Hotel, Milwaukee, Wis., Jan. 11-13, 1956. B. A. Beach, 1215 Vilas Ave., Madison 5, Wis., secretary.

Tennessee Veterinary Medical Association. Annual meeting. Nashville, Tenn., Jan. 15-16, 1956. H. W. Hayes, 734 Broadway, Northeast, Knoxville, Tenn., secretary.

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Intermountain Veterinary Medical Association. Annual meeting. Hotel Utah, Salt Lake City, Utah, Jan. 16-18, 1956. Edward A. Tugaw, 3015 S. State St., Salt Lake City, Utah, secretary.

Iowa Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Iowa, Jan. 17-19, 1956. F. B. Young, Waukee, Iowa, executive secretary.

Virginia Veterinary Medical Association. Annual meeting. Hotel John Marshall, Richmond, Va., Jan. 22-24, 1956. Wilson B. Bell, 210 Clay St., Blacksburg, Va., secretary.

California State Veterinary Medical Association. Midwinter conference. School of Veterinary Medicine, University of California, Davis, Calif., Jan. 23-25, 1956. Charles S. Travers, 3004 16th St., San Francisco, Calif., executive secretary.

Minnesota State Veterinary Medical Society. Annual meeting. Hotel St. Paul, St. Paul, Minn., Jan. 23-25, 1956. B. S. Pomeroy, School of Veterinary Medicine, University of Minnesota, St. Paul, Minn., secretary.

North Carolina Veterinary Conference. North Carolina State College, Raleigh, N. Car., Jan. 24-27, 1956. C. D. Grinnells, State College Station, Raleigh, N. Car., chairman, conference committee.

Maryland State Veterinary Medical Association. Winter meeting. Lord Baltimore Hotel, Baltimore, Md., Jan. 26-27, 1956. John D. Gadd, Cockeysville, Md., secretary.

Oregon State Veterinary Medical Association. Annual meeting. Multnomah Hotel, Portland, Ore., Jan. 27-28, 1956. E. L. Holden, Oswego, Ore., secretary.

Ontario Veterinary Medical Association. Annual meeting. Royal York Hotel, Toronto, Ont., Jan. 27-28, 1956. G. A. Edge, Box 37, Postal Station "F," Toronto 5, Ont., secretary.

(Continued on p. 20)

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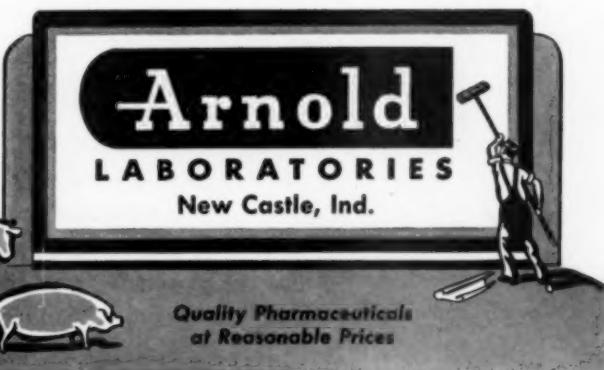
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Louisiana State University. Annual conference for veterinarians. Louisiana State University, Baton Rouge, Jan. 31-Feb. 1, 1956. W. T. Oglesby, head, Department of Veterinary Science, Louisiana State University, Baton Rouge, La.

Connecticut Veterinary Medical Association. Annual meeting. Hotel Bond, Hartford, Conn., Feb. 1, 1956. E. H. Patchen, 289 New Haven Ave., Milford, Conn., secretary.

Texas Veterinary Medical Association. Annual meeting. Baker Hotel, Mineral Wells, Texas, Feb. 5-7, 1956. Paul B. Blunt, 710 Maverick Bldg., San Antonio, Texas, executive secretary.

West Virginia Veterinary Medical Association. Winter meeting. Greenbrier Hotel, White Sulphur Springs, W. Va., Feb. 19-20, 1956. D. A. Munro, West Virginia University, Morgantown, W. Va., secretary.

Missouri Veterinary Medical Association. Annual meeting. Kansas City, Mo., Feb. 20-21, 1956. Paul L. Spencer, P.O. Box 283, Jefferson City, Mo., secretary.

Illinois State Veterinary Medical Association. Annual meeting. Hotel LaSalle, Chicago, Ill., Feb. 20-22, 1956. C. B. Hostetter, 1385 Whitcomb Ave., Des Plaines, Ill., secretary.

Colorado A. & M. College. Conference for veterinarians. Glover Veterinary Hospital, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo.,

Feb. 20-22, 1956. O. R. Adams, Department of Veterinary Clinics and Surgery.

Alabama Veterinary Medical Association. Annual meeting. Whitley Hotel, Montgomery, Ala., March 18-20, 1956. M. K. Heath, School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala., secretary.

Washington, State College of. Annual conference for veterinarians. College of Veterinary Medicine, State College of Washington, Pullman, Wash., April 2-4, 1956. John R. Gorham, conference chairman.

American Animal Hospital Association. Annual meeting. Hotel Fontainebleau, Miami Beach, Fla., May 23-26, 1956. W. H. Riser, 5335 Touhy Ave., Skokie, Ill., executive secretary.

Maryland State Veterinary Medical Association. Annual summer meeting. George Washington Hotel, Ocean City, Md., June 28-29, 1956. John D. Gadd, Cockeysville, Md., secretary.

American Veterinary Medical Association. Annual meeting. Municipal Auditorium, San Antonio, Texas, Oct. 15-18, 1956. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Foreign Meetings

World Congress on Fertility and Sterility. Naples, Italy, May 18-26, 1956. Professor T. Bonadonna, Via Monte Ortigara, 35, Milan, Italy, in charge of Veterinary Section.

Tenth International Congress of Entomology. McGill University and University of Montreal, Montreal, Canada, Aug. 17-25, 1956. J. A. Downes, Division of Entomology, Science Service Bldg., Ottawa, Ont., Canada, secretary.

International Association of Hydatidology. Sixth Congress. Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, 1 MacKenzie King St., Athens, Greece, general secretary.

(Continued on p. 221)



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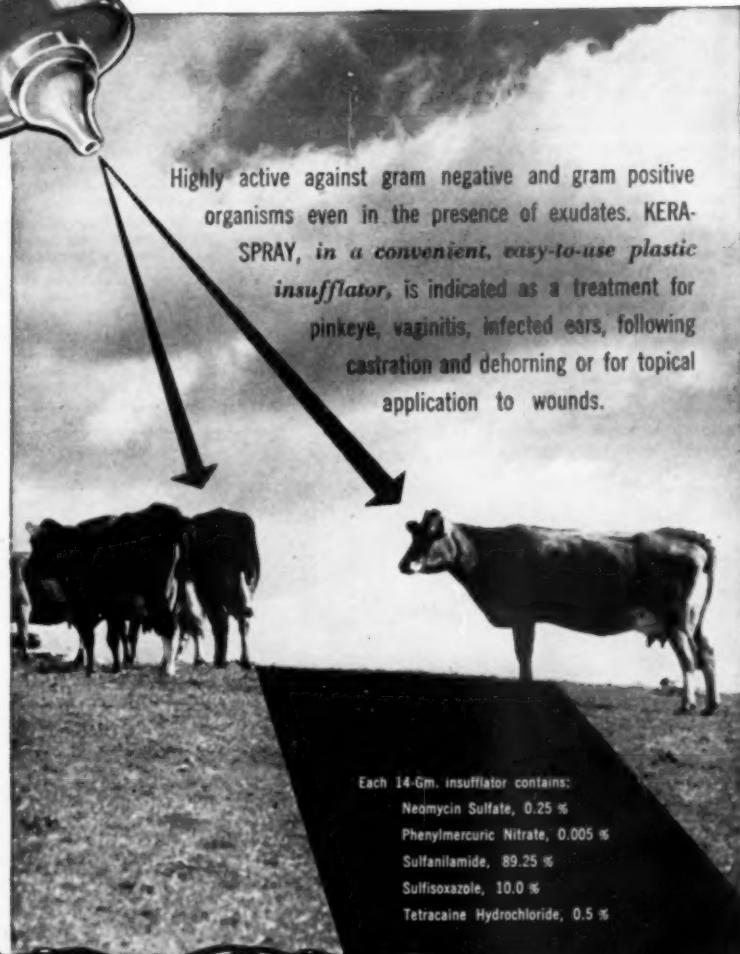
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Regularly Scheduled Meetings

ALABAMA—Central Alabama Veterinary Association, the first Thursday of each month. G. J. Phelps, Jr., Montgomery, Ala., secretary.

Jefferson County Veterinary Medical Association, the second Thursday of each month. W. R. Laster, Jr., 213 N. 15th St., Birmingham, Ala., secretary.

ARIZONA—Central Arizona Veterinary Medical Association, the second Tuesday of each month. Keith T. Maddy, Phoenix, Ariz., secretary.

Pima County Veterinary Medical Association, the third Wednesday of each month in Tucson. E. T. Anderson, 8420 Tanque Verde Rd., Tucson, Ariz., secretary.

Southern Arizona Veterinary Medical Association, the third Wednesday of each month at 7:30 p.m. E. T. Anderson, Rt. 2, Box 697, Tucson, Ariz., secretary.

CALIFORNIA—Bay Counties Veterinary Medical Association, the second Tuesday of each month. E. Paul, Redwood City, Calif., secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Wilfred Pimentel, 3455 S. Elm Ave., Fresno, Calif., secretary.

East Bay Veterinary Medical Association, bimonthly, the fourth Wednesday. John T. Turver, 1201 E. 12th St., Oakland 6, Calif., secretary.

Kern County Veterinary Medical Association, the first Thursday evening of each month. B. C. Watson, 825 14th St., Bakersfield, Calif., secretary.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. W. H. Rockey, P. O. Box 121, San Luis Obispo, Calif., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. Lewis J. Campbell, 90 Corral de Tierra, Salinas, Calif., secretary.

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Lyle A. Baker, Turlock, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month at 8:00 p.m. in Antlers Hotel, San Bernardino, Calif. Jay C. Wallis, 112 N. Girard St., Hemet, Calif., secretary.

Orange County Veterinary Medical Association, the third Thursday of each month. Donald E. Lind, 2643 N. Main St., Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. T. D. Harris, San Mateo, Calif., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. Robert E. Clark, Napa, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. W. E. Steinmetz, 4227 Freeport Blvd., Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Thursday of each month. H. R. Rossoll, 1795 Moore St., San Diego, Calif., secretary.

San Fernando Valley Veterinary Medical Association, the second Friday of each month at Eaton's Restaurant in Studio City, Calif. R. A. Button, 5954 Van Nuys Blvd., Van Nuys, Calif., secretary.

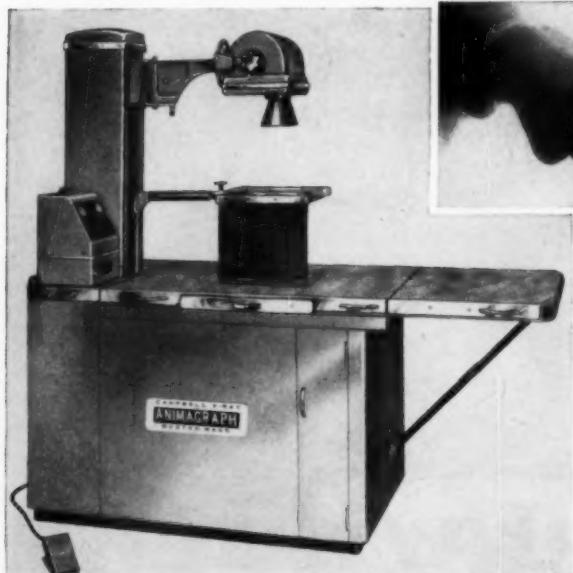
Southern California Veterinary Medical Association, the third Wednesday of each month. Howard C. Taylor, 2811 West Olive St., Burbank, Calif., secretary.

Tulare County Veterinarians, the second Thursday of each month. R. B. Baraleau, 2333 E. Mineral King, Visalia, Calif., secretary.

COLORADO—Northern Colorado Veterinary Medical Society, the first Monday of each month. M. A. Hammarlund, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo., secretary.

DELAWARE—New Castle County Veterinary Association,

(Continued on p. 24)



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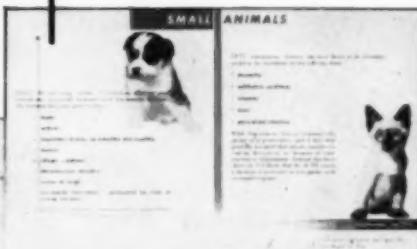
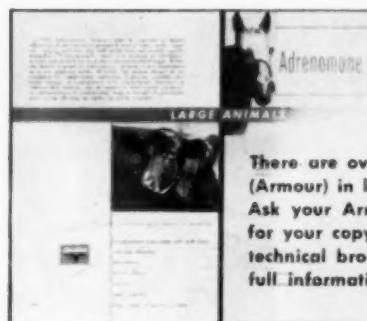


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FLORIDA—Jacksonville Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. L. D. Barrett, Rt. 8, Box 572, Jacksonville, Fla., secretary.

South Florida Veterinary Society, the third Tuesday of each month, at the Seven Seas Restaurant, Miami, Fla. E. D. Stoddard, 6432 S. W. 8th St., Miami, Fla., secretary.

GEORGIA—Atlanta Veterinary Society, the second Tuesday of every month at the Elks Home on Peachtree St., Atlanta, Ga. J. L. Christopher, Smyrna, Ga., secretary.

ILLINOIS—Chicago Veterinary Medical Association, the second Tuesday of each month. Mark E. Davenport, Jr., 215 S. Edgewood Ave., LaGrange, Ill., secretary.

Eastern Illinois Veterinary Medical Association, the first Thursday of March, June, September, and December. A one-day clinic is held in May. R. P. Link, College of Veterinary Medicine, University of Illinois, Urbana, Ill., secretary.

INDIANA—Central Indiana Veterinary Medical Association, the second Wednesday of each month. Charles J. York, P. O. Box 1636, Indianapolis 6, Ind., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month, at the Hotel LaSalle, South Bend, Ind. L. D. Ramsay, 719 E. Jefferson Ave., La Porte, Ind., secretary.

Tenth District Veterinary Medical Association the third Thursday of each month. W. E. Sharp, Union City, Ind., secretary.

IOWA—Cedar Valley Veterinary Association, the second Monday of each month, except January, July, August, and October, at Black's Tea Room, Waterloo, Iowa. D. A. Buchanan, Grundy Center, Iowa, secretary.

Coon Valley Veterinary Association, the second Wednes-

day of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. D. I. Lee, Sac City, Iowa, secretary.

Fayette County Veterinary Association, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Northeast Iowa-Southern Minnesota Veterinary Association, the first Tuesday of February, May, August, and November at the Winselick Hotel, Decorah, Iowa, 6:30 p.m. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

KENTUCKY—Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month in Louisville or within a radius of 50 miles. Dr. W. E. Bewley, P. O. Box "H", Crestwood, Ky., secretary.

MARYLAND—Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m. at the Park Plaza Hotel, Charles and Madison St., Baltimore, Md. Harry L. Schultz, Jr., 9011 Harford Rd., Baltimore, Md., secretary.

MICHIGAN—Mid-State Veterinary Medical Association, the fourth Thursday of each month with the exception of November and December. Robert E. Kader, 5034 Armstrong Rd., Lansing 17, Mich., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. S. Correll, Rt. 1, Midland, Mich., secretary.

Southeastern Veterinary Medical Association, the fourth Wednesday of every month, September through May. Gilbert Meyer, 14003 E. Seven Mile Rd., Detroit 5, Mich., secretary.

MISSOURI—Greater St. Louis Veterinary Medical Association, the first Friday of the month (except July and August) at the Sheraton Hotel, Spring Ave. and Lin-

(Continued on p. 26)



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dell Blvd. Allen B. Shopmaker, 136 N. Meramec, Clayton 5, Mo., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at alternating hospitals. W. F. Noland, 7504 Metcalf, Overland Park, Kan., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month at Exchange Hall, ninth floor, Livestock Exchange Bldg., 1600 Genesee St., Kansas City, Mo. Busch Meredith, 800 Woodswether Rd., Kansas City 5, Mo., secretary.

NEW JERSEY—Central New Jersey Veterinary Medical Association, the second Thursday of November, January, March, and May at Old Hights Inn, Hightstown, N. J. David C. Tudor, Cranbury, N. J., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from October through April at the Academy of Medicine, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Milburn Ave., Maplewood, N. J., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday of each month at the Casa Mana in Teaneck, N. J. Edward Baker, 568 Grand Ave., Englewood, N. J., secretary.

NEW YORK—New York City, Inc., Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63rd St., New York City. C. E. DeCamp, 43 West 61st St., New York 23, N. Y., secretary.

Monroe County Veterinary Medical Association, the first Thursday of even-numbered months except August. Irwin Bircher, 50 University Ave., Rochester, N. Y., secretary.

NORTH CAROLINA—Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro, N. Car. R. T. Copeland, 1800 Walker Ave., Greensboro, N. Car., secretary.

Eastern North Carolina Veterinary Medical Association,

the first Friday of each month. John D. Baker, Goldsboro, N. Car., secretary.

Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. W. W. Dickson, Box 1071, Gastonia, N. Car., secretary.

OHIO—Cuyahoga County Veterinary Medical Association, the first Wednesday of each month, September through May (except January), at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Ed. R. Jacobs, 5522 Pearl Rd., Cleveland, Ohio, secretary.

OKLAHOMA—Oklahoma County Veterinary Medical Association, the second Wednesday of every month except July and August. Carl L. Clark, 127 N. W. 23rd St., Oklahoma City, Okla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month in Directors' Parlor of the Brookside State Bank, Tulsa, Okla. Merle S. Watts, 5302 E. 11th St., Tulsa, Okla., secretary.

PENNSYLVANIA—Keystone Veterinary Medical Association, the fourth Wednesday of each month at the University of Pennsylvania School of Veterinary Medicine, 39th and Woodland Ave., Philadelphia 4, Pa. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

SOUTH CAROLINA—Piedmont Veterinary Medical Association, the third Wednesday of each month at the Fairforest Hotel, Union, S. Car. Worth Lanier, York, S. Car., secretary.

TEXAS—Coastal Bend Veterinary Association, the second Wednesday of each month. J. Marvin Prewitt, 4141 Lexington Blvd., Corpus Christi, Texas, secretary.

WASHINGTON—Seattle Veterinary Medical Association, the third Tuesday of each month in the Trinity Episcopal Church, 8th and James St., Seattle, Wash. P. R. Des Rosiers, 5508 2nd Ave., N. W., Seattle 7, Wash., secretary.

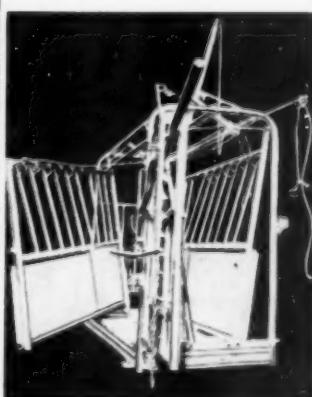
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POLYOTIC*

Lederle Professional Line

POLYOTIC* INTRAMUSCULAR:

100 mg.-500 mg.-1.0 Gm.-5.0 Gm.

POLYOTIC INTRAVENOUS:

100 mg.-2.5 Gm.

POLYOTIC OBLETS®: 4's-6 x 4's

POLYOTIC CAPSULES: 50 mg., 25's-100's;
100 mg., 100's; 250 mg., 16's-100's

POLYOTIC TABLETS: 50 mg., 25's-100's;
100 mg., 25's-100's; 250 mg., 16's-100's

POLYOTIC MASTITIS OINTMENT: $\frac{1}{4}$ oz.

POLYOTIC COMPOUND MASTITIS OINTMENT: $\frac{1}{4}$ oz.

POLYOTIC OPHTHALMIC OINTMENT 1%:

6 x $\frac{1}{2}$ oz.

POLYOTIC TOPICAL OINTMENT 3%: 1 oz.

POLYOTIC SOLUBLE (Tinted) POWDER:

$\frac{1}{4}$ lb.- $\frac{1}{2}$ lb.-1 lb.-5 lb.

AVIANIZED® RABIES VACCINE (Canine):

1 dose-5 x 1 dose-10 doses

AVIANIZED RABIES VACCINE (Cattle): 10 doses

AVIANIZED CANINE DISTEMPER VACCINE:

1 dose-10 x 1 dose

ANTI-CANINE DISTEMPER SERUM AND ANTI-INFECTIOUS

CANINE HEPATITIS SERUM: 20 cc. 100 cc.

INFECTIOUS CANINE HEPATITIS VACCINE: 2 cc.-10 cc.

BRUCELLA ABORTUS VACCINE: 1 dose-5 x 1 dose-
5 doses (25 cc.)

FELINE DISTEMPER VACCINE: 1 immunization (2 vials
Vaccine, 2 vials Sterile Diluent, 2 cc.)

ANTI-FELINE DISTEMPER SERUM: 50 cc.

CARICIDE® Diethylcarbamazine TABLETS:

400 mg., 25's

DIETHYLSTILBESTROL SOLUTION: 10 cc.-50 cc.

LEPTOSPIRA CANICOLA-ICTEROHEMORRHAGIAE BACTERIN
Whole Culture Inactivated Vacuum-Dried.

Other products to be added.

*Trade-Mark



LEDERLE LABORATORIES DIVISION

Pearl River

AMERICAN *General* COMPANY

New York

Tetracycline

No other antibiotic is available to the profession only in such a wide variety of dosage forms. No matter what route of administration, there is a POLYOTIC designed for proper professional application and for dispensing. Available to Licensed Veterinarians Only.



Compare
PRICE

Compare
RESULTS

and you will always
Prescribe
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ACTUAL SIZE
THE ORIGINAL
UDDER BOUGIE

MASTICS P&S

100,000 units penicillin
50,000 mcg. dihydrostreptomycin

MASTICS act fast because medication in high concentration is quickly dispersed throughout the quarter. Improvement often noted in 12 hours.

MASTICS contain no grease, no wax, no insoluble materials to remain in the udder retarding antibiotic action. MASTICS milk out completely—produce no residue on the strainer.

MASTICS are so effective, cows are returned to the herd more promptly with less loss of production.

LOW IN COST... HIGH IN POTENCY
MASTICS SAVE TIME, MONEY, MILK



WRITE FOR SAMPLES AND PRICES

The Martin Laboratories
West Chester, Penna.

(TOMATO JUICE—continued from p. 28)

sterilized, 5-year-old, 35-lb. (10.6 kg.) female believed to be, among other things, a mixture of Brittany Spaniel and Norwegian Elkhound. It is rumored that her father's master sported a Cadillac. She thinks she is a good hunter; has tramp tendencies.

Subject No. 2.—Sable is a 7± year-old, 60-lb. (20.7 kg.) mongrel male of uncertain heritage, but is believed to be a mixture of Collie and Husky. His ambition is to be a lapdog; has astraphobia (fear of lightning and thunder).

Modus Operandi.—A 29-ounce (856 ml.) can of commercial tomato juice was selected. Sable was anointed from tips to toes with the reddish liquid and a generous rubdown was administered. Now we had a dirty red dog. He stood for the shenanigans for a while, but finally rebelled, was let loose, shook himself sprinkling tomato juice on the anointer; then he rolled in the sand. Now we had a sandy red dog.

Next, three unbiased human noses were chosen to smell both animals. Without informing the owners of the details and reasons, their noses were placed about 3 inches (8 cm.) from the back of the neck and face of the dogs. Their observations were made two hours after the tomato shampoo. The unanimous decision was that Wags smelled skunk and that Sable had an aroma of tomatoes. Another test, made that afternoon with different noses, produced similar results, except that the anointed dog now smelled of stale tomato juice.

We decided then to rinse the tomato residue off of Sable with lukewarm water, then again dunk both dogs in the lake. When dry, Sable's white fur still had a reddish cast, and a salmon-red hue right down to the skin.

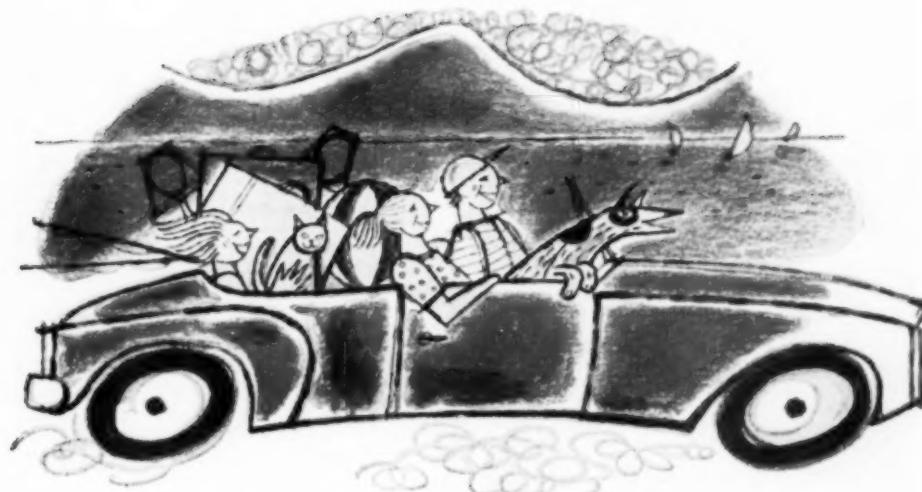
The following morning three different human noses were enlisted to sniff the subjects. One lady said that both dogs had a curious odor which she was unable to identify (she had never encountered a skunk either!) so her observation was thrown out. The other two noses detected effluvia of skunk on the "control" dog, and no odor of polecat on the "treated" one, albeit an odor of something.

Three weeks later the "control" subject, Wags, seemed to have an almost imperceptible odor of n-butyl mercaptan, the chemical name for skunk oil, while Sable smelled just like dog.

CONCLUSION

Although this study indicated that the tomato juice bath seemed to help to eliminate skunk aroma on a dog, it is my considered judgment that the observations are too few to justify conclusions. A good contrast should have at least 100 exposed subjects—50 "treated" and 50 "controls"—and one qualified, deodorized statistician. It is hoped that other investigators will continue the study. As for this investigator, he quits for odorous reasons.

Incidentally, Sable is now almost white again.



For the nausea often associated with motion sickness, "nervous gastritis," and the administration of certain drugs, such as anthelmintics, you want prompt, long-lasting, and effective control.

YOU CAN GET IT WITH

Bonamine*

Brand of meclizine hydrochloride

Bonamine is also indicated:

- in "nervous" gastritis
- to control nausea of worming
- whenever a general anti-nauseant is required

dosage:

The usual dose is 1/2 tablet daily for animals of 2-5 lb., 1 tablet up to 20 lb., 1-2 up to 50 lb. and 2-3 for larger animals. When administration is prolonged, the dosage required may often be reduced.

You can count on long-lasting, well-tolerated therapy, with a welcome absence of side effects.

availability:

Bonamine, one of Pfizer's pharmaceuticals for human use, is available to you through your regular wholesaler and to your clients on your prescription.

package:

Bonamine Tablets, 25 mg., are supplied in boxes of 8 and bottles of 100 and 500.

*TRADEMARK

Department of Veterinary Medicine



PFIZER LABORATORIES
Division, Chas. Pfizer & Co., Inc.
Brooklyn 6, N. Y.



Doctor, make your small animal work easier . . . with a better light, a safer sterilizer

Whether it's a balky patient, awkward work area, or routine case—you want an operating light that focuses easily, and gives vision over a larger area even if animal moves.

Castle's new Veterinary Light swings through 355°—gives light from *any angle*. Offset Pantograph arm puts light directly over table; arm adjusts vertically within 24" range; lamp moves easily on caster base. (Wall and ceiling models also available.)

Color-correction makes diagnosis more accurate. Easy vision lessens fatigue.

Note the Castle "777" Speed-Clave. Safer, faster, easier than boiling, this autoclave destroys hepatitis virus, gives you added protection.

to: **Wilmot Castle Co.**
1766 E. Henrietta Road, Rochester, N.Y.

Please send free folder on how Castle equipment can help improve my hospital.

Name _____

Street _____

City _____ State _____

My veterinary supply dealer is: _____

Castle LIGHTS AND STERILIZERS

CLASSIFIED ADVERTISEMENTS

Personal Want Ads—\$4.00 for the first 25 words and 10 cents for each additional word; 35 cents for use of box number.

Commercial Want Ads—\$5.00 for the first 25 words, 25 cents for each additional word.

Remittance must accompany ad.

Deadlines for Want Ads

For JOURNAL dated 1st of month — 8th of month preceding date of issue.

For JOURNAL dated 15th of month — 22nd of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the key letters, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 3, Ill., and it will be transmitted to the advertiser.

Wanted—Veterinarians

Veterinarian wanted by veterinary division of major company for service work and clinical research in livestock and poultry problems. Prefer recent graduate. Include résumé of academic training and industrial experience with reply. Send statement of qualifications. Address "Box Y 10," c/o JOURNAL of the AVMA.

Veterinarian who is interested in future ownership wanted for large animal practice near Chicago; nice clientele. Address "Box A 4," c/o JOURNAL of the AVMA.

Unlimited opportunity for graduate veterinarian willing to work on commission. Submit complete references. Must be qualified in treating small animals, including ear trimming. New small animal hospital; nice sleeping quarters. Address "Box A 6," c/o JOURNAL of the AVMA.

Ontario graduate interested in starting small animal practice in good location in Ontario desires enterprising partner. Address "Box A 7," c/o JOURNAL of the AVMA.

Veterinarian wanted for Ontario County, \$4,400; New York State residents. Examination Feb. 17, 1956; last date for filing applications Jan. 25, 1956. Applications and further information available at office of Civil Service Commission, Court House, Canandaigua, New York.

Wanted—Positions

Graduate AVMA-approved school desires position with industrial firm; 5 years' experience includes practice, laboratory and regulatory work. Address "Box A 1," c/o JOURNAL of the AVMA.

Veterinarian with general practice experience since graduation (1952) desires position offering permanence; prefer Rocky Mountain area. Consideration and prompt answer to replies. Available late spring. Address "Box A 5," c/o JOURNAL of the AVMA.

Veterinarian available; position leading to purchase

(Continued on p. 36)

*An important
new idea in
Distemper-Hepatitis
Immunization*



Sin-jex is the first Distemper-Hepatitis vaccine to utilize a vacuum dried *modified live virus* distemper fraction, with killed virus hepatitis fraction as diluent. *Sin-jex* gives more positive immunity against distemper: because the modified live virus distemper fraction elicits a more marked immunity response. *Sin-jex* is instantly reconstituted because of the R_L "reconsti-quick" feature. *Sin-jex* is a fine homogenous suspension which passes easily through a 22 gauge needle. *Sin-jex* is easily administered with a single subcutaneous injection. *Sin-jex* may be given simultaneously with or without Anti-Canine Distemper-Infectious Hepatitis Anti-Serum. *Sin-jex* produces immunity in less than two weeks. *Sin-jex* may be used before or after weaning.

Research Laboratories, Inc.
St. Joseph, Missouri

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selling to Licensed Veterinarians only
* IKAUC MAKK



veterinary equipment news



durable, metal sheathed instrument/serum cases

Baked black enamel over steel with brass trim. 5 standard models; light weight, yet built to take knocks! See folder N-1 for sizes, prices.



new do-it-yourself Plasti-Plated cages

Before you buy cages, write for folder N-2 on our amazing new Plasti-Plated kennels. Rock-hard, glass-smooth, seamless surfaces. Inexpensive, easy to do-it-yourself!



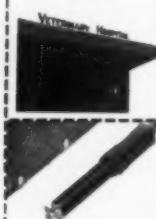
electric "B" dairy cow branding iron

Heats in 90 seconds, makes a clean brand, weighs only 11 ounces. T and V brands available, too. Uses 110 v. current, won't smoke. Write for folder N-3.



new! clear plastic cases for your glass syringes

Keep syringes sterile, clean in these light, unbreakable plastic cases. Covers for 5, 10 and 20 cc. syringes, \$5.75 set, folder N-4 gives details.



new! plastic sign letters for your hospital

Our new selection of beautiful weatherproof plastic signs will dress-up your office or clinic. All sizes, colors, easily installed. Write for folder N-5.



hi-current electric firing iron

Most modern, up-to-date way to fire horses, remove warty growths, ear polyps, tumors. Complete with 11 points/tips. Write for folder N-6.

- folder N-1 cases
- folder N-2 Plasti-Plate
- folder N-3 "B" Irons
- folder N-4 syringe cases
- folder N-5 sign letters
- folder N-6 firing irons

Please send me the folders I've checked above.

DVM

street

city

Nicholson Manufacturing, Inc.
2440 East Third Avenue Denver 6

clip and mail today

(CLASSIFIED ADS—continued from p. 34)

or partnership desirable but not essential. Three years' excellent small animal experience. Licensed Florida, Georgia, Alabama. Will consider research work. Married. Address "Box A 13," c/o JOURNAL of the AVMA.

German veterinarian, 31 years old, married, no children, desires employment in small animal practice. Graduate veterinary college at Munich, 1951 (graduates of this year are recommended by AVMA for recognition by State Boards and other agencies); employed for past 3 years at Army Veterinary Small Animal Clinic, Munich; fluent English. Address Dr. Helmut Freudenberg, 483rd Medical Detachment, APO 407, New York, N.Y.

Wanted—Practices

Young recently graduated veterinarian would like to lease small animal hospital in New York or Ohio. Address "Box A 9," c/o JOURNAL of the AVMA.

Experienced veterinarian desires to purchase good dairy practice. Describe any real estate involved; state cash required down. Address "Box A 10," c/o JOURNAL of the AVMA.

For Sale or Lease—Practices

Fabulous Las Vegas — established practice priced to sell; excellent opportunity. License through reciprocity possible. Address Dr. Alfred Bernkrant, 1800 S. Main St., Las Vegas, Nev.

Large animal practice for sale in Illinois city of 7,000; small practice, 85 per cent large animals, no hard competition. Average net last 4 years about \$9,500. New ranger-type chute, office equipment, instruments, and drugs valued around \$5,000. Lease on office and will sell house if wanted; established 1920 in this office. Going into another line of work. Address "Box A 2," c/o JOURNAL of the AVMA.

Large animal practice for sale north central Indiana; available immediately. Grosses over \$25,000; \$2,500 cash for inventory of drugs and equipment. Address "Box A 3," c/o JOURNAL of the AVMA.

Small animal practice for sale; choice location in Virginia. No property involved, \$10,000. Good lease on land, building, equipment, and apartment. Profit last year over \$20,000. Address "Box A 8," c/o JOURNAL of the AVMA.

Completely equipped, long-established small animal hospital and practice for sale or lease; modern equipment, new building. Only veterinary practice in Illinois city of 50,000. Address "Box A 11," c/o JOURNAL of the AVMA.

Veterinary hospital for sale or lease in San Diego, California; under one management 23 years. Health

(Continued on p. 37)

Corn Belt Laboratories, Inc.

EAST ST. LOUIS, ILLINOIS

The Veterinarians' Institution

M·A·C



Quick relief for Bone,
Bursal or Tendon Lameness
 Single Bottle.....\$2.00
 3 and 1 free.....5.00
 6 and 2 free.....9.00
 12 and 4 free.....17.00
 24 and 4 free.....28.00

CARTER-LUFF CHEMICAL CO.
 Hudson, N. Y.

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(CLASSIFIED ADS—continued from p. 361)

compels occupant to retire. Contact owner, A. H. Dysart, 700 N. Strand, Oceanside, Calif.

Zoned for animal use—excellent location, main highway; approximately 850 sq. ft. reception, office, and surgery area; 1,300 sq. ft. under same roof for cages; 1,000 sq. ft. additional buildings for cages or kennels. Five-room home plus 3-room cottage for caretaker or personal use. Conservatively priced at \$45,000. Address Ralph E. Ker, 10749 San Pablo Ave., El Cerrito, Calif., telephone BE 4-1160.

Small animal clinic, modern design, established practice in rapidly growing coastal town in southern California. Consider sale or lease. Address "Box A 14," c/o JOURNAL of the AVMA.

Miscellaneous

INFORMATION WANTED as to present whereabouts of Turkish veterinarian, Ali Berber, about 48 years old, Mohammedan, probably emigrated in 1937 or 1938, believed to have gone to New York or Chicago. Please communicate with Foreign Service Section, American Friends Service Committee, 20 S. 12th St., Philadelphia 7, Pa.

Man wanted for night attendant for small animal hospital in southern California. Will work under the best of conditions, but must be able to handle clients in a courteous and responsible manner. Permanent position. Address "Box A 12," c/o JOURNAL of the AVMA.

For Sale—Aloe x-ray machine, radiographic and fluoroscopic unit, 30 ma., 85 kv.p.; movable automatic bucky in table and a type-B fluoroscopic screen; in excellent condition. Price \$950. Address W. J. Rongaus, M.D., 601 Thompson Ave., Donora, Pa., telephone 66.

Save over \$1,100 on used (M.S.D.) veterinary unit; 33.3% off on chassis, 25% off on body; 19,000 miles, excellent condition. Write or call Baldwin Veterinary Hospital, Putney, Vt.

Breedersleeve—The disposable obstetrical sleeve. Package of 20 with detachable chest band, \$5.00; lower wholesale prices. Free sample upon request. Breeders Equipment Co., Flourtown, Pa.

BROKEN TEETH

—repaired in bottom clipper blades.
 Top and bottom blades sharpened to
 match. Save money—Guaranteed.
 Prices on Request

HIGHLY SPECIALIZED SHARPENING

Sales—Repairing on Oster
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Sharpened Blades Tested on Rabbit Fur

OSTER A2 \$7.50 STEWART \$1.00

Prompt Service—Est. 17 years

MAIL TO

CLIPPER SERVICE OAK RIDGE NEW JERSEY



C. G. P. Reinforced

*gives Therapeutic Amounts
of Calcium, Phosphorus,
Magnesium & Dextrose*

**use C.G.P. Reinforced to treat
deficiency conditions
due to disturbed metabolism.**

... the most complete preparation offered the Profession . . . for the simultaneous administration of therapeutic amounts of Calcium, Phosphorus, Magnesium and Dextrose. Animals deficient in these elements due to disturbed metabolism, caused by unbalanced mineral and carbohydrate ratio in body, food or soil respond readily to C.G.P. Reinforced.

Use C.G.P. Reinforced for your next case of milk fever, grass tetany, or hypoglycemia. Similar conditions in other animals also respond equally well to C.G.P. Reinforced therapy.

C.G.P. Reinforced is administered intravenously and/or intraperitoneally. For cows give from 250 cc. to 500 cc.; for sheep and swine 50 cc. to 100 cc. Supplied in Ctn. 12—500 cc. bottles.

**SEE HAVER-GLOVER MESSENGER
FOR FORMULA AND PRICE**

**HAVER-GLOVER
Laboratories**
KANSAS CITY, MO.

RABIES VACCINE

(Lockhart)

Experience —

The article at left as news is not new. It is timely only because it is human nature to seek the sensational, and overlook tried and time-proven methods. Phenolized rabies vaccine has been used as an efficient control measure for many years.

Efficiency —

Immunity developed by phenolized rabies vaccine (for a practical period of time) is as good as that from any other rabies vaccine, as reported by the Public Health Service.

Effort —

Throughout the years Lockhart has tried to have adequate supplies of Rabies Vaccine available for immediate shipment at all times. Even during the stress of the unprecedented demand upon the industry during the 1954 vaccination season, no one was without vaccine of Lockhart manufacture.

PHENOLIZED RABIES VACCINE CONTROLS OUTBREAK

According to Frederickson *et al.*¹ the 1950 to 1951 rabies epizootic in St. Louis was controlled quickly, by mass vaccination of the dog population, after quarantine measures alone had failed. Neighboring communities continued to have a high incidence of rabies. Although only about 0.5 percent of the 38,006 dogs vaccinated in the clinics received modified live virus vaccine, and the overwhelming majority received the usual 20 percent phenolized vaccine of caprine and ovine origin, not a single case of postvaccinal paralysis was reported to the Health Division. These figures would indicate that the danger of postvaccinal paralysis in dogs, following administration of phenolized rabies vaccine, may have been greatly exaggerated recently.

1. Frederickson, L. E.; Willett, J. C.; Smith, J. E., and Price, E. R.: Metropolitan rabies epizootic controlled by vaccination. *Vet. Med.* 48 (1953) 276-279. 288.
(from *The North American Veterinarian*, Nov. 1953)

Emphasis—Lockhart Rabies Vaccine
is produced by veterinarians — sold only to veterinarians

ASHE LOCKHART, INC. • 800 WOODSWETHER ROAD, KANSAS CITY 5, MO.

the most important development in management
of retained bovine placenta since sulfonamides

NEW!

enzyme-antibiotic
intrauterine bolus



UTERASE

**liquifies retained placental shreds—
controls postparturient infections!**

removes debris—permits normal uterine involution

One to three Uterase boluses in the uterine horns following removal of retained placenta quickly liquify placental shreds, letting normal postparturient healing process begin at once.

gives proved antibacterial protection in the uterus

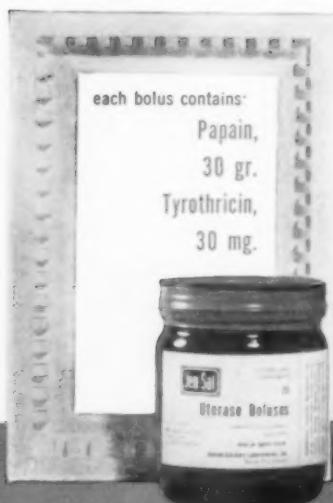
Uterase contains the antibiotic, Tyrothricin, selected specifically for its proved effectiveness in bovine uterine infections.

provides consistently stable therapeutic action

Papain and Tyrothricin maintain their effectiveness in the presence of exudates and pH variations encountered in the uterus.

backed by two years of critically evaluated testing

In two years of clinical tests, Uterase has given consistently dramatic results, quickly returning uterine discharges to normal without marked putrefaction or irritation to normal tissue.



packaged in
jars of 20 boluses



UTERASE

Jensen-Salsbury Laboratories, Inc.
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